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U. S. DEPARTMENT OF AGRICULTURE

COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME
ECONOMICS, 1916

PART II OF REPORT ON EXPERIMENT STATIONS AND
EXTENSION WORK IN THE UNITED STATES

1916



WASHINGTON
GOVERNMENT PRINTING OFFICE

1917

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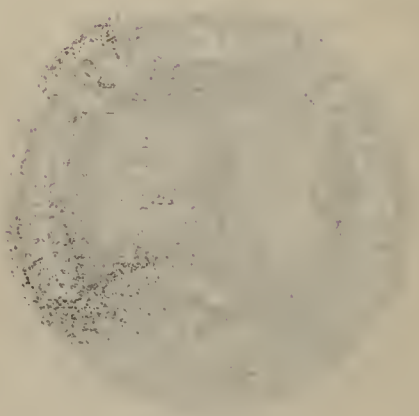
WASHINGTON
GOVERNMENT PRINTING OFFICE
1917

THE UNIVERSITY OF CHICAGO

24 APR 1968
FROM THE UNIVERSITY OF CHICAGO
TO THE DIRECTOR, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

RE: AERONAUTICS AND SPACE ADMINISTRATION
SUBJECT: AERONAUTICS AND SPACE ADMINISTRATION

1010



LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
STATES RELATIONS SERVICE,
Washington, D. C., July 16, 1917.

SIR: I have the honor to transmit herewith a report on the cooperative agricultural extension work in the United States for the fiscal year ended June 30, 1916, and on the work of the Department of Agriculture in relation thereto. This report has been prepared in accordance with the following provision of the act of Congress of March 4, 1915, entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and sixteen":

That hereafter there be prepared by the Department of Agriculture an annual report on the work and expenditures of the agricultural experiment stations established under the act of Congress of March second, eighteen hundred and eighty-seven (Twenty-fourth Statutes at Large, page four hundred and forty), on the work and expenditures of the Department of Agriculture in connection therewith, and on the cooperative agricultural extension work and expenditures of the Department of Agriculture and of agricultural colleges under the act of May eighth, nineteen hundred and fourteen, entitled "An act to provide for cooperative agricultural extension work between the agricultural colleges in the several States receiving the benefits of an act of Congress approved July second, eighteen hundred and sixty-two, and of acts supplementary thereto, and the United States Department of Agriculture"; and that there be printed annually eight thousand copies of said report, of which one thousand copies shall be for the use of the Senate, two thousand copies for the use of the House of Representatives, and five thousand copies for the use of the Department of Agriculture (38 Stat. L., p. 1110).

This report embodies all the information heretofore submitted in compliance with the provisions of 38 Stat. L., p. 374, sec. 7.

Very respectfully,

A. C. TRUE, *Director.*

Hon. D. F. HOUSTON,
Secretary of Agriculture.

STATES RELATIONS SERVICE.

A. C. TRUE, Director.

OFFICE OF EXTENSION WORK IN THE SOUTH.

BRADFORD KNAPP, Chief.

J. A. EVANS, Assistant Chief.

States.

Texas, Oklahoma, Louisiana, Arkansas, Tennessee, Mississippi, Alabama, Georgia, Florida, South Carolina, North Carolina, Virginia, Maryland, West Virginia, and Kentucky.

Washington Staff.

COOPERATIVE RELATIONS AND COUNTY-AGENT WORK.

J. A. EVANS, Assistant chief.

W. D. BENTLEY, Agriculturist and field agent in general charge of projects, etc., and acting in charge of work for Oklahoma and Texas.

W. B. MERCIER, Agriculturist and field agent for Arkansas, Louisiana, Tennessee, and North Carolina.

H. E. SAVELY, Agriculturist and field agent for Mississippi, Alabama, South Carolina, Georgia, and Florida.

E. A. MILLER, Agriculturist and field agent for Kentucky, Maryland, Virginia, and West Virginia.

J. D. McVEAN, Specialist, animal husbandry.

J. H. McCLAIN, Specialist, dairy husbandry.

J. W. KINGHORNE, Specialist, poultry husbandry.

KENNETH HAWKINS, Specialist, bee culture.

W. R. MATTOON, Specialist, forestry.

C. L. GOODRICH, Specialist, farm management.

L. O. WATSON, Specialist, cotton and truck crop diseases.

BOYS' AND GIRLS' CLUB WORK AND HOME-DEMONSTRATION WORK.

O. B. MARTIN, Assistant in charge of boys' and girls' club work and home-demonstration work.

I. W. HILL, Assistant in boys' club work.

MARY E. CRESWELL, Assistant in home demonstration and girls' club work.

OLA POWELL, Assistant in home demonstration and girls' club work.

MADGE J. REESE, Assistant in home-demonstration work.

ASSISTANTS.

H. W. BARBER, Assistant in charge of crop records and statistics.

W. H. CONWAY, Executive assistant.

F. M. McLAUGHLIN, Record clerk.

Cooperative Field Extension Staff.

COUNTY AGENT AND BOYS' CLUB WORK.

Men agents: 15 directors, 14 State agents, 26 assistant State agents, 54 district agents, 879 county agents, 64 local agents for negroes, 32 special community leaders in club work.

Women agents: 14 State agents, 25 assistant State agents, 16 district agents, 517 county agents, 8 local agents for negroes.

OFFICE OF EXTENSION WORK IN THE NORTH AND WEST.

C. B. SMITH, Chief.

L. A. CLINTON, Assistant Chief.

States.

Arizona, California, Colorado, Connecticut, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Washington, Wisconsin, and Wyoming.

Washington Staff.

COOPERATIVE RELATIONS.

L. A. CLINTON, Agriculturist and assistant chief, in charge.

D. W. WORKING, Agriculturist.

R. W. REDMAN, Agriculturist.

COUNTY-AGENT WORK.

W. A. LLOYD, Agriculturist, in charge.

H. B. FULLER, Agriculturist.

L. R. SIMONS, Agriculturist.

W. M. COOK, Agriculturist.

O. S. FISHER, Agriculturist.

H. W. GILBERTSON, Assistant agriculturist.

ADMINISTRATIVE SUBJECT-MATTER SPECIALISTS.

A. B. GRAHAM, Assistant agriculturist, in charge.

H. J. WILDER, Agriculturist, soils.

A. F. HAWES, Specialist, forestry.

J. D. McVEAN, Specialist, animal husbandry.

C. P. CLOSE, Specialist, horticulture.

D. C. DAVIS, Specialist, sheep husbandry.

J. W. KINGHORNE, Specialist, poultry husbandry.

BOYS' AND GIRLS' CLUB WORK.

O. H. BENSON, Agriculturist, in charge.

GEORGE E. FARRELL, Assistant agriculturist.

GERTRUDE WARREN, Assistant.

FARM-MANAGEMENT DEMONSTRATIONS.

L. H. GODDARD, Agriculturist, in charge.

P. K. WHELPTON, Scientific assistant.

EXTENSION WORK WITH FARM WOMEN.

FLORENCE E. WARD, Assistant agriculturist, in charge.

ASSISTANTS.

J. A. LIGGETT, Executive assistant.

M. M. THAYER, Assistant executive clerk.

L. G. MAYBEE, Record clerk.

Cooperative Field Extension Staff.

COUNTY-AGENT WORK.

33 county agent leaders, 15 assistant county agent leaders, 551 county agents.

BOYS' AND GIRLS' CLUB WORK.

30 State leaders, 35 assistant State leaders, 148 district club leaders.

FARM-MANAGEMENT DEMONSTRATIONS.

27 State demonstrators, 6 assistant demonstrators.

HOME-DEMONSTRATION WORK.

7 State leaders, 3 assistant State leaders, 30 county home-demonstration agents.

ADDRESS LIST OF STATE INSTITUTIONS AND OFFICERS IN CHARGE OF AGRICULTURAL EXTENSION WORK.

State.	Officer in charge of extension work.	Address.
Alabama.....	J. F. Duggar.....	Alabama Polytechnic Institute, Auburn.
Arizona.....	E. P. Taylor.....	College of Agriculture, University of Arizona, Tucson.
Arkansas.....	W. C. Lassetter ¹ ..	College of Agriculture, University of Arkansas, Fayetteville.
California.....	W. T. Clarke.....	College of Agriculture, University of California, Berkeley.
Colorado.....	H. T. French.....	State Agricultural College of Colorado, Fort Collins.
Connecticut.....	H. J. Baker.....	Connecticut Agricultural College, Storrs.
Delaware.....	H. Hayward.....	Delaware College, Newark.
Florida.....	P. H. Rolfs.....	College of Agriculture, University of Florida, Gainesville.
Georgia.....	J. Phil Campbell..	Georgia State College of Agriculture, Athens.
Idaho.....	O. D. Center.....	The State House, Boise.
Illinois.....	W. F. Handschin..	College of Agriculture, University of Illinois, Urbana.
Indiana.....	G. I. Christie.....	Purdue University, La Fayette.
Iowa.....	R. K. Bliss.....	Iowa State College of Agriculture and Mechanic Arts, Ames.
Kansas.....	E. C. Johnson.....	Kansas State Agricultural College, Manhattan.
Kentucky.....	Fred Mutchler....	College of Agriculture, The State University, Lexington.
Louisiana.....	W. R. Dodson....	Louisiana State University and Agricultural and Mechanical College, Baton Rouge.
Maine.....	L. S. Merrill.....	College of Agriculture, University of Maine, Orono.
Maryland.....	T. B. Symons.....	Maryland State College of Agriculture, College Park.
Massachusetts.....	W. D. Hurd.....	Massachusetts Agricultural College, Amherst.
Michigan.....	R. J. Baldwin.....	Michigan Agricultural College, East Lansing.
Minnesota.....	A. D. Wilson.....	College of Agriculture, University of Minnesota, University Farm, St. Paul.
Mississippi.....	E. R. Lloyd.....	Mississippi Agricultural and Mechanical College, Agricultural College.
Missouri.....	A. J. Meyer.....	College of Agriculture, University of Missouri, Columbia.
Montana.....	F. S. Cooley.....	Montana State College of Agriculture and Mechanic Arts, Bozeman.
Nebraska.....	C. W. Pugsley....	College of Agriculture, University of Nebraska, Lincoln.
Nevada.....	C. A. Norcross....	College of Agriculture, University of Nevada, Reno.
New Hampshire...	J. C. Kendall.....	New Hampshire College of Agriculture and the Mechanic Arts, Durham.
New Jersey.....	Alva Agee.....	Rutgers College, New Brunswick.
New Mexico.....	A. C. Cooley.....	New Mexico College of Agriculture and Mechanic Arts, State College.
New York.....	A. R. Mann.....	New York State College of Agriculture, Ithaca.
North Carolina....	B. W. Kilgore....	North Carolina College of Agriculture and Mechanic Arts, West Raleigh.
North Dakota.....	T. P. Cooper.....	North Dakota Agricultural College, Agricultural College.
Ohio.....	C. S. Wheeler.....	College of Agriculture, Ohio State University, Columbus.
Oklahoma.....	J. A. Wilson.....	Oklahoma Agricultural and Mechanical College, Stillwater.
Oregon.....	R. D. Hetzel.....	Oregon State Agricultural College, Corvallis.
Pennsylvania.....	M. S. McDowell...	Pennsylvania State College, State College.
Rhode Island.....	A. E. Stene.....	Rhode Island State College, Kingston.
South Carolina....	W. W. Long.....	Clemson Agricultural College of South Carolina, Clemson College.
South Dakota.....	G. W. Randlett...	South Dakota State College, Brookings.
Tennessee.....	C. A. Keffer.....	College of Agriculture, University of Tennessee, Knoxville.
Texas.....	Clarence Ousley...	Agricultural and Mechanical College of Texas, College Station.
Utah.....	J. T. Caine, III...	Agricultural College of Utah, Logan.
Vermont.....	Thomas Bradlee..	University of Vermont and State Agricultural College, Burlington.
Virginia.....	J. M. Jones.....	Virginia Polytechnic Institute, Blacksburg.
Washington.....	W. S. Thornber...	State College of Washington, Pullman.
West Virginia.....	C. R. Titlow.....	College of Agriculture, West Virginia University, Morgantown.
Wisconsin.....	K. L. Hatch.....	College of Agriculture, University of Wisconsin, Madison.
Wyoming.....	A. E. Bowman....	College of Agriculture, University of Wyoming, Laramie.

¹ Acting director.

OFFICIALS IN CHARGE OF FARMERS' INSTITUTE WORK IN THE STATES.

ALABAMA.—C. A. Cary, Alabama Polytechnic Institute, Auburn.
 DELAWARE.—Wesley Webb, secretary State board of agriculture, Dover.
 ILLINOIS.—Mrs. H. A. McKeene, secretary pro tem, Illinois farmers' institutes, Springfield.
 IOWA.—A. R. Corey, secretary State board of agriculture, Des Moines.
 LOUISIANA.—H. D. Wilson, commissioner of agriculture, Baton Rouge.
 MAINE.—J. A. Roberts, commissioner of agriculture, Augusta.
 MARYLAND.—————, director of farmers' institutes, Upper Marlboro.
 MASSACHUSETTS.—Wilfrid Wheeler, secretary State board of agriculture, Boston.
 MISSOURI.—Jewell Mayes, secretary State board of agriculture, Columbia.
 NEW HAMPSHIRE.—Andrew L. Felker, commissioner of agriculture, Concord.
 NEW JERSEY.—Alexis L. Clark, director of farmers' institutes, Trenton.
 NEW YORK.—Edward Van Alstyne, director bureau of farmers' institutes, Albany.
 NORTH CAROLINA.—T. B. Parker, director of farmers' institutes, Raleigh.
 PENNSYLVANIA.—C. E. Carothers, director of farmers' institutes, Harrisburg.
 RHODE ISLAND.—John J. Dunn, secretary State board of agriculture, Providence.
 TEXAS.—J. W. Neill, director of institutes, Austin.
 VERMONT.—Elbert S. Brigham, commissioner of agriculture, St. Albans.
 VIRGINIA.—J. J. Owen, director of institutes, Richmond.

OFFICIALS IN CHARGE OF FARMERS' INSTITUTE WORK IN THE AGRICULTURAL COLLEGES.

ARIZONA.—E. P. Taylor, director of extension, college of agriculture, Tucson.
 ARKANSAS.—W. C. Lassetter, acting director of extension, college of agriculture, Fayetteville.
 CALIFORNIA.—W. T. Clarke, director of extension, college of agriculture, Berkeley.
 COLORADO.—H. T. French, director of extension, college of agriculture, Fort Collins.
 CONNECTICUT.—H. J. Baker, director of extension, agricultural college, Storrs.
 FLORIDA.—P. H. Rolfs, director of extension, college of agriculture, Gainesville.
 GEORGIA.—J. Phil Campbell, director of extension, college of agriculture, Athens.
 IDAHO.—O. D. Center, director of extension, State House, Boise.
 INDIANA.—W. C. Latta, farmers' institute specialist, Purdue University, La Fayette.
 KANSAS.—Edward C. Johnson, director of extension, college of agriculture, Manhattan.
 KENTUCKY.—Fred Mutchler, director of extension, college of agriculture, Lexington.
 MICHIGAN.—L. R. Taft, superintendent of farmers' institutes, East Lansing.
 MINNESOTA.—A. D. Wilson, director of extension, University Farm, St. Paul.
 MISSISSIPPI.—R. H. Pate, superintendent of farmers' institutes, Agricultural College.
 MONTANA.—F. S. Cooley, director of extension, agricultural college, Bozeman.
 NEBRASKA.—C. W. Pugsley, director of extension, college of agriculture, Lincoln.
 NEVADA.—C. A. Norcross, director of extension, college of agriculture, Reno.
 NEW MEXICO.—A. C. Cooley, director of extension, State College.
 NORTH DAKOTA.—Frank Sanford, superintendent of farmers' institutes, Agricultural College.
 OHIO.—F. L. Allen, supervisor of institutes and schools, Ohio State University, Columbus.
 OKLAHOMA.—J. A. Wilson, director of extension, college of agriculture, Stillwater.
 OREGON.—R. D. Hetzel, director of extension, college of agriculture, Corvallis.
 SOUTH CAROLINA.—W. W. Long, director of extension, Clemson College.
 SOUTH DAKOTA.—H. H. Stoner, superintendent of short courses, college of agriculture (P. O. Highmore).
 TENNESSEE.—C. A. Keffer, director of extension, college of agriculture, Knoxville.
 UTAH.—J. T. Caine, III, director of extension, college of agriculture, Logan.
 WASHINGTON.—W. S. Thornber, director of extension, college of agriculture, Pullman.
 WEST VIRGINIA.—C. R. Titlow, director of extension, college of agriculture, Morgantown.
 WISCONSIN.—E. L. Luther, superintendent of farmers' institutes, college of agriculture, Madison.
 WYOMING.—H. G. Knight, director of agricultural experiment station, Laramie.

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS, 1916.

INTRODUCTION.

This is the second report on the receipts, expenditures, and results of cooperative agricultural extension work in the 48 States under the provisions of the act of Congress of May 8, 1914 (agricultural extension act), and of similar work conducted in connection therewith under cooperative agreements between the United States Department of Agriculture, the State agricultural colleges, and county governments and organizations. Since July 1, 1915, the business of the Department of Agriculture in relation to the cooperative extension work has been carried on by the States Relations Service, through two extension offices, one having charge of the work in 15 Southern States; and another in the 33 Northern and Western States. In each State the agricultural college has carried on this work through an extension division, at the head of which is an officer, ordinarily called an extension director, who is administratively responsible for the work throughout the State and in this capacity acts as a joint representative of the department and the college.

The work in the counties has been extended and strengthened and has been more generally put on a permanent basis. The beneficial results of this county organization have become so clearly apparent to large numbers of farmers and others interested in the development of our agricultural communities that there is a steady growth of the demand for the establishment of the work in additional counties as far as the available funds will permit. At the beginning of the year 1,136 counties had the service of a county agricultural agent, while at the end of the year 1,225 had such services.

The women county agents, or home-demonstration agents, also increased in number during the year from 350 to 430. Most of these are in the Southern States, but during the year a few counties in the North began the employment of such agents, and there is every indication that this movement will continue to spread.

The Department of Agriculture has more fully systematized and coordinated the extension work of its different bureaus. This work is now carried on as a part of the general cooperative extension

system in accordance with the plans mutually agreed upon by the department and the State colleges. Extension specialists representing lines of work of the general bureaus are either located in the States or go out from the department and by agreement with the extension directors in the States aid the county agents and extension specialists of the colleges in their work among the farming people.

The colleges have materially enlarged the force of extension specialists in the various branches of agriculture and home economics, with headquarters at the college, who operate throughout the State, supplementing the work of the county agents where they exist and preparing the way for them in other counties. The work among the women in the Northern and Western States is largely done by the home-economics specialists. An increasing amount of attention is given both by the specialists and the county agents to the problems of marketing and community interests.

The formation of voluntary organizations on a county basis, often called farm bureaus, or in the several communities to support the work of the county agents financially and otherwise, continues with increasing importance. These groups, composed principally of farmers and their families, perform a most valuable service in giving a substantial backing to the efforts of the agents, making their plans and operations fit into the actual needs of the communities and spreading a knowledge of the work and its results among their neighbors.

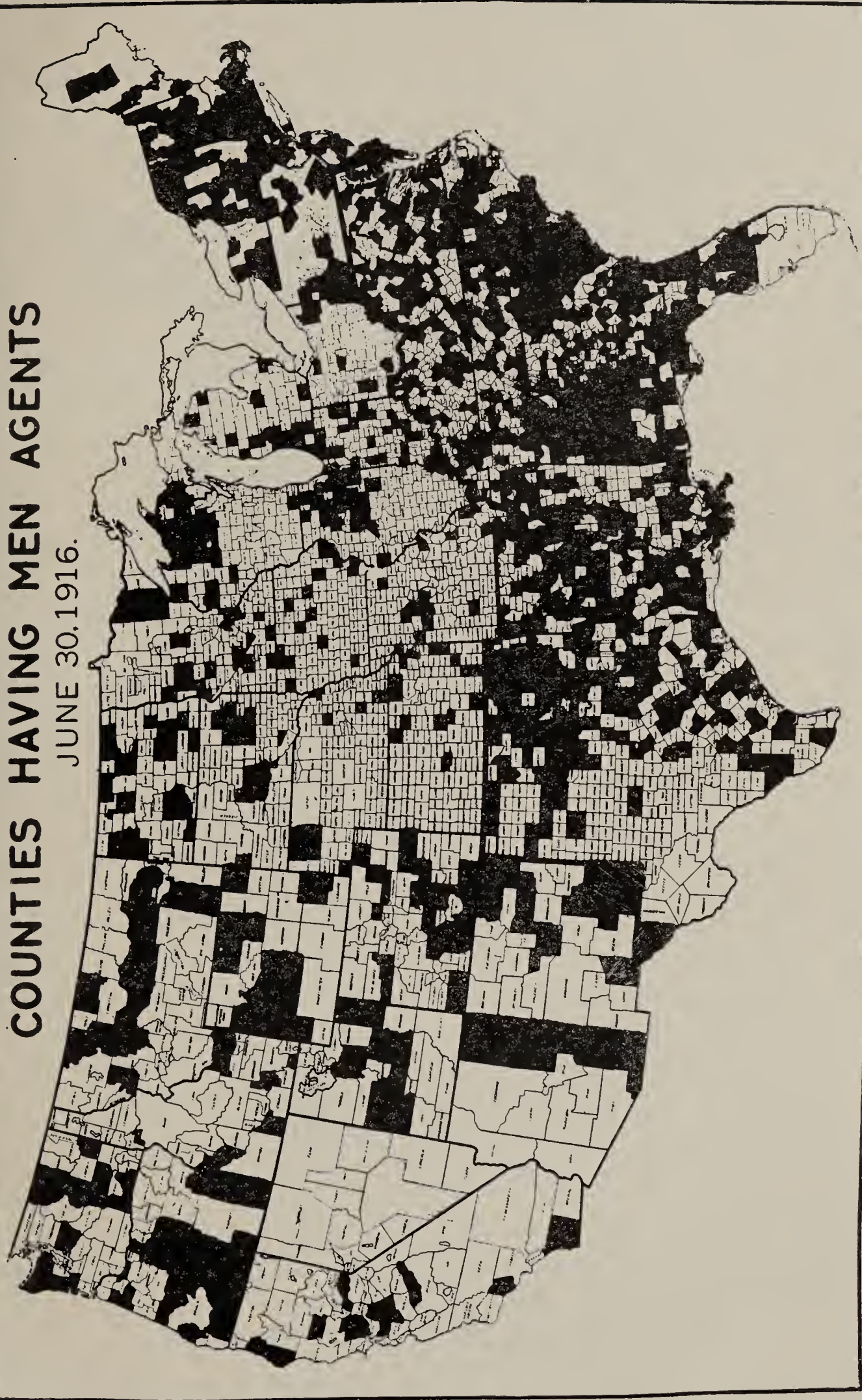
The total number of persons employed in the cooperative extension work increased during the year from 2,600 to 3,000. Those employed full time increased from 1,800 to 2,200, those working more than half time increased from 150 to 210, and those working less than half time decreased from 640 to 610.

For the fiscal year 1916, under the provisions of the Smith-Lever Act, the sum of \$1,080,000 was appropriated from the Federal Treasury and \$600,000 from sources within the States, making a total of \$1,680,000. Of this amount \$575,000 was used for county agents, \$245,000 for the demonstrations and other work in home economics, \$100,000 for the boys' clubs, and \$90,000 for extension schools. The sum of \$360,000 was spent for the salaries and expenses of the extension specialists. The salaries and expenses of the supervising officials and their administrative assistants amounted to \$265,000, and \$43,000 was spent for the printing and distribution of publications.

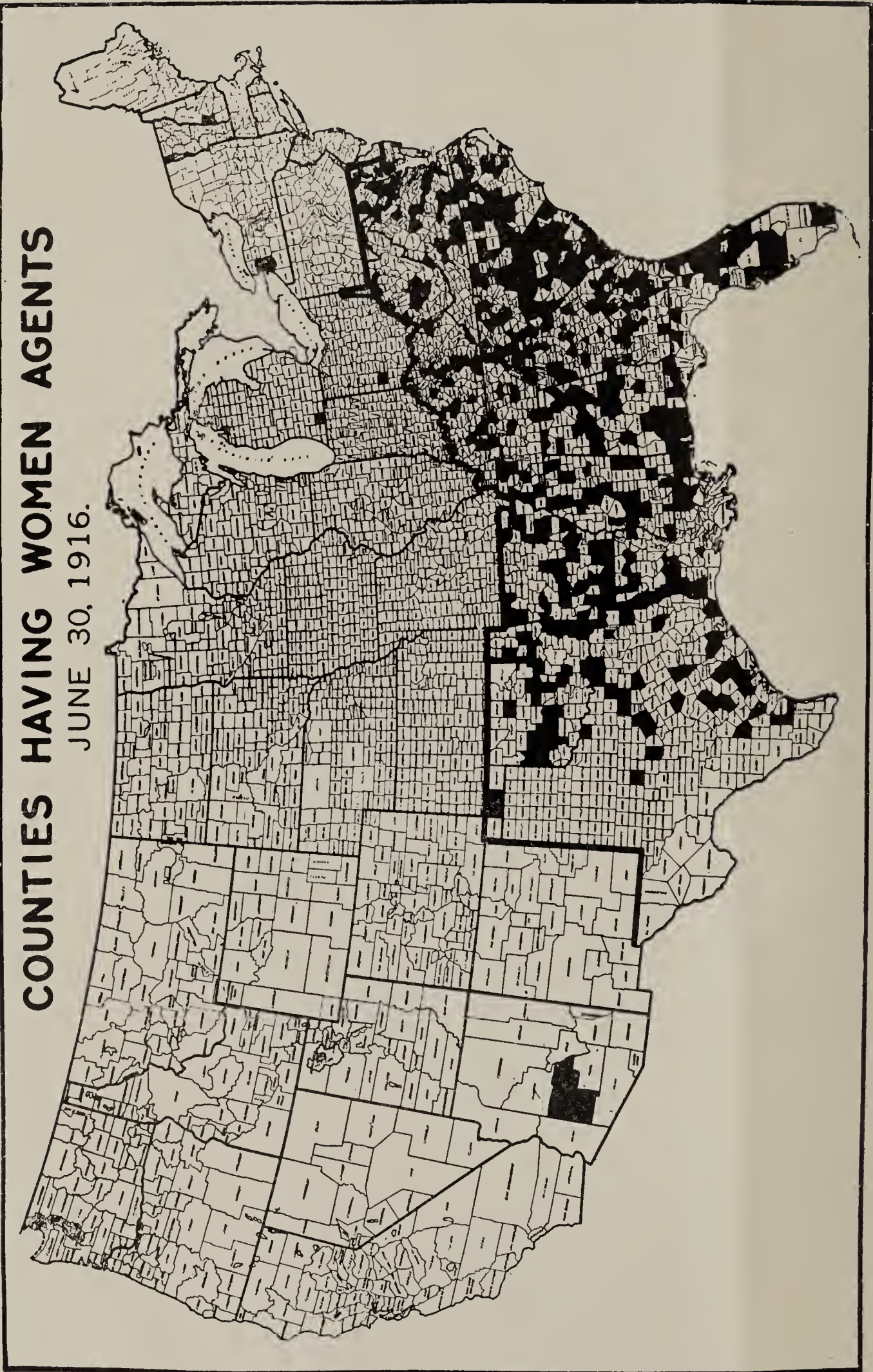
The total amount of money expended for the cooperative agricultural extension work in 1916 was about \$4,850,000, as compared with \$3,500,000 in 1915. This is an increase of \$1,350,000, or about 40 per cent. In 1916 these funds were derived from the following sources: Federal and State Smith-Lever, \$1,680,000; appropriations

COUNTIES HAVING MEN AGENTS

JUNE 30, 1916.



COUNTIES HAVING MEN AGENTS, 1916.



to the States Relations Service of the Department of Agriculture for farmers cooperative demonstration work, \$900,000; appropriations to other bureaus and offices of the department, \$165,000; State funds appropriated specifically for extension work (in excess of Smith-Lever funds), \$650,000; appropriated by county authorities, \$970,000; fund under direct control of the colleges, \$220,000; and \$275,000 from various sources, such as farmers' organizations, chambers of commerce, individuals, etc.

Of this total amount from all sources, about \$2,400,000, or one-half, was used for the work of county agents, and \$520,000 for the home-demonstration agents and home-economic specialties, including the girls' club work.

Among the other important items were \$230,000 for the boys' clubs, \$198,000 for extension schools, \$445,000 for supervision and administration, \$100,000 for publications, \$107,000 for animal husbandry, \$172,000 for dairying, \$88,000 for farm management, and \$80,000 for special work on farm crops. The remainder was chiefly spent on the work of specialists in animal diseases, horticulture, plant diseases, entomology, agricultural engineering, etc., and on correspondence courses, farmers' institutes, educational exhibits at fairs, and the promotion of the teaching of agriculture in rural schools.

In 1916 the farmers' institutes in 17 States were managed by the State department of agriculture. In the other States they were under the control of the agricultural colleges and formed a part of the general system of agricultural extension work, oftentimes being closely connected with the more systematic scheme of popular instruction in agriculture and home economics embodied in the so-called extension schools. The number of meetings of farming people held in connection with the work of the county and club agents and extension specialists has greatly increased with the development of the cooperative extension system. These meetings, however, have very largely had demonstrations in the field and elsewhere as their central interest and thus have become more practical and definitely educational.

EXTENSION WORK IN THE SOUTH.

ORGANIZATION AND ADMINISTRATION.

The extension work in the South was conducted under the same general plans during 1915-16 as were outlined in the report of the previous fiscal year. There were no important changes of policy in any of the 15 Southern States. The increased funds were used mainly in strengthening lines of work already begun and in securing better qualified and more efficient workers.

The following changes and additions in the organization of the administrative, supervisory, and other workers have taken place during the year:

In the States of Alabama, Florida, Kentucky, Louisiana, Maryland, North Carolina, South Carolina, Tennessee, and West Virginia there were no changes in the administrative forces.

In Arkansas, J. H. Miller was made director July 15, 1915. He resigned November 1, 1916, and W. C. Lassetter, assistant director, became acting director.

In Georgia, J. Phil Campbell was made director of extension work on July 1, 1915, succeeding A. M. Soule, who had been acting director.

In Mississippi, the State agent in men's work was made assistant director in charge of men's work, and the State agent in women's work was made assistant director in charge of all the women's work.

W. D. Bentley, director of extension in Oklahoma, resigned May 15, 1916, and was succeeded by James A. Wilson.

State Agent W. F. Proctor, of Texas, died in January, 1916, and was succeeded by T. O. Walton, whose title is now assistant director in charge of farm-demonstration work.

On July 1, 1916, Jesse M. Jones was made director of extension in Virginia. The president of the college had been acting director up to this time.

During the year there was a total increase in the field force of 2 men district agents, 9 women district agents, 2 negro women district agents, 70 men county agents, 54 home-demonstration agents, 8 negro local agents, 2 negro women local agents, and 35 specialists. The total number of men county agents now employed is 887; women agents, 451; and specialists, 201.

PUBLICATIONS.

During the year 1915-16 the extension divisions of the 15 Southern States issued 306 publications, containing 2,747 pages. There were 245,694 names reported on the mailing lists of the extension divisions in these States. Only a few of the extension divisions have classified mailing lists and a few others send out bulletins only when request is made for them. County agents usually keep a supply of these publications on hand to distribute locally as needed. The total cost of issuing publications was \$33,366.89. Of this amount, only \$24,229 is from Smith-Lever funds, both Federal and State. This is less than 4 per cent of the total Smith-Lever fund for the South. As a rule the publications were prepared by members of the extension division and the college faculty, and were designed to meet the demand among the farmers of the State for the information contained.

FINANCES.

All funds going into the extension work in every State are spent in accordance with the acts of Congress making the appropriations and of the State legislatures where State funds are involved. The following shows the amounts and sources of all money used for carrying on extension work in the South for the fiscal year of 1915-16:

Smith-Lever, Federal	\$424, 350. 05
Smith-Lever, State	274, 350. 05
United States Department of Agriculture, States Re- lations Service ¹	598, 792. 02
United States Department of Agriculture, other bu- reaus and offices ¹	116, 680. 49
State appropriations	115, 045. 32
College	43, 459. 91
County appropriations	460, 462. 23
Other appropriations	69, 001. 91
Total	2, 102. 141. 98

The Smith-Lever funds were expended in carrying out the following projects in the 15 Southern States: Administration, publications, county agents, home economics, extension schools, boys' clubs, pig clubs, poultry clubs, animal husbandry, poultry, dairying, animal diseases, agronomy, horticulture, botany and plant pathology, entomology, forestry, agricultural engineering, farm management, rural organization, marketing, exhibits and fairs, and miscellaneous specialists. No one State had all of these projects. Every State had a project for administration, publications, county agents, boys' clubs, and home demonstration and girls' club work.

¹ Not including administration expenses, or at Washington offices, or for expenses of employees working out of Washington.

A detailed financial statement of the expenditures of all the extension funds from the States has been submitted and approved.

The county agents in all States are financed partly from local funds and partly from funds furnished by the extension divisions of the colleges and the United States Department of Agriculture.

THE COUNTY AGENT.

The county-agent work is the leading and most important project in each of the 15 Southern States, nearly 55 per cent of the total extension funds being used in that work. It is planned in each State to place a man agent and a woman agent in each county as rapidly as available funds and conditions will permit. The county agent is considered the leader in his county in all extension activities.

It should always be understood that the county agent is not entitled to all the credit for the results obtained in his county. He is a member of an organization, every part of which contributes materially to the success of the work in each county. This statement is especially true of those who travel out from the State agricultural college and are generally known under the title of specialists. They are men who have had peculiar and special training along different lines of agriculture and are fitted to solve especially intricate or particular problems. Specialists and other agricultural workers work through the county agents in conducting extension work of any kind in counties having county agents.

The scope of the agents' work has therefore been extended to cover all phases of agriculture and practically all lines of work carried out by the entire extension machinery. At the beginning of each year's work the agent is generally required to submit a plan of work outlining the problems he intends to take up, the number and kind of different demonstrations to be conducted during the year to help the farmers to solve the problems in question, and the organization and other features of the work necessary to make his efforts more effective. Concrete demonstrations with staple crops in all communities throughout the county constitute a fundamental part of the county agent's work. These demonstrations illustrate better methods of crop production, handling of soil, selection of seed, and the building up of soil fertility. Where there are special problems within the county, demonstrations to meet these special conditions are outlined by specialists and the plan taken up by the county agent who, with the assistance of the specialists, locates the demonstrations and makes them a part of the general plan of work for which he holds himself responsible. In the South the county agent is usually regarded as a public officer, since all of his salary, as a rule, comes from public sources. The efficient county agent is regarded as a

most valuable county officer. The administrative officers in charge of the work impress upon the county agent that he is a servant of all the people of the county, and that he must not permit his services to be monopolized by a few.

The main problem of the county agent is to reach and give service to the largest possible number of persons in his county. As the demands for the county agent's services increase, the importance of organization becomes apparent. In the South the type of organization found most desirable and effective is the community organization of from 10 to 20 in number to study local problems, to participate in the demonstrations, and to get the entire membership to practice the improved methods illustrated in the demonstrations. Of course, such community organizations also take up many other problems, both educational and economic, such as cooperative shipment, marketing, etc. The county agent, however, is mainly concerned with the general problem of making his work effective in the community, and recording the greatest possible increase in agricultural efficiency. The county organization is generally made up of representatives from these community organizations, meeting with the county agent, county superintendent, and other officials, and sometimes with representatives of business or commercial organizations of the cities and towns. County organizations consider mainly the county-wide problems and general agricultural interests of the county as a whole. If there are existing organizations within the county or in communities the county agent tries to work with such organizations. If this is not practicable other organizations are gradually formed. As an indication of the progress made during the last year it should be pointed out that in the report for 1914-15 the number of community organizations formed was given as 1,712, with a membership of 44,548. This year the combined reports from the same territory show more than 2,500 such organizations formed during the past year, with a total membership of 78,660. The county agent's main work regarding such organizations is to establish local leadership and create activity upon the part of these local organizations. He succeeds best in proportion as he gets these local organizations and their membership doing things rather than to do the work himself. Community and county organizations similar to those described have been growing most rapidly in West Virginia, Kentucky, Tennessee, Mississippi, Georgia, and North Carolina.

The average salary of county agents at the present time is \$1,476.39. In most cases the county agent is required to pay his traveling expenses out of the sum named as his salary. There is a tendency, however, to change this rule. In West Virginia 50 per cent of the county agents receive all of their traveling expenses from local funds and 50 per cent receive part of such expenses. In

Louisiana all agents using automobiles in their work are given a small expense allowance. The agent buys the automobile. In Arkansas 10 per cent receive all traveling expenses and 15 per cent part, while some of the county agents in most of the other States receive contributions from local sources toward their traveling expenses. From a general view of the situation in the field, the best service is now being rendered by men receiving salaries from \$1,500 to \$2,000 and expenses, with proper training, experience, and equipment. There was expended in county-agent work from all sources during the fiscal year ending June 30, 1916, \$1,154,628.52.

Since the establishment of the demonstration work 12 years ago the average yields of staple farm crops has greatly increased. It is noteworthy also that the increase in acreage and production of certain standard farm crops as compared with cotton show that great progress has been made in the campaign for diversification, which has been one of the principal efforts of the county agents' activities from the first inception of the work in the South.

The increase in the production of corn, oats, wheat, and hay in the 11 cotton States from 1909 to 1916, inclusive, as shown in the following table, would indicate that the county agents' efforts for diversification were a valuable aid in bringing this desired result.

Total yield of corn, oats, wheat, and hay in the 11 cotton States of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas for the years 1909 to 1916, inclusive.

Year.	Corn.	Corn. ¹	Oats.	Wheat.	Hay.
	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Bushels.</i>	<i>Tons.</i>
1909.....	461,536,000	291,755,000	51,847,000	28,622,000	3,108,000
1910.....	664,752,000	432,912,000	90,577,000	55,120,000	3,428,000
1911.....	539,136,000	432,898,000	65,506,000	34,619,000	2,611,000
1912.....	685,333,000	430,155,000	90,659,000	46,829,000	4,295,000
1913.....	658,252,000	442,802,000	97,237,000	51,009,000	4,214,000
1914.....	610,851,000	436,051,000	102,685,000	85,188,000	4,577,000
1915.....	812,883,000	513,908,000	157,714,000	88,842,000	6,269,000
1916.....	613,420,000	428,995,000	124,322,000	69,927,000	5,754,000

¹ Second column gives total production of corn for States named above other than Texas and Oklahoma.

The decrease in yields in some States over preceding years was not the result of a decrease in acreage planted, but a result of unfavorable growing conditions.

The number of farmers who have enrolled for demonstration work has increased from 4,000 in 1904 to 119,134 in 1916, distributed as follows: Alabama, 11,918; Arkansas, 17,485; Florida, 5,272; Georgia, 5,232; Kentucky, 3,021; Louisiana, 7,777; Maryland, 429; Mississippi, 3,294; North Carolina, 12,499; Oklahoma, 14,758; South Carolina, 4,558; Tennessee, 4,527; Texas, 21,151; Virginia, 5,779; and West Virginia, 1,434.

The following tables show the number of farm demonstrations, the acreage under demonstration, and yields by States for a number of selected crops:

Number of farmers demonstrating, number of acres demonstrated, average yield of corn per acre on demonstrations in 1916, seven-year average yields on demonstrations (1910 to 1916, inclusive), and Bureau of Crop Estimates figures for same periods.

State.	1916		Average yield per acre in demonstrations (bushels).		Bureau of Crop Estimates figures (bushels).	
	Number of farmers demonstrating.	Number of acres demonstrated.	1916	Seven-year average, 1910-1916, inclusive.	1916	Seven-year average, 1910-1916, inclusive.
Alabama.....	5,608	59,518	27.9	39.0	12.5	16.7
Arkansas.....	7,589	88,183	33.5	33.9	17.7	20.3
Florida.....	663	4,177	34.3	28.0	15.0	14.5
Georgia.....	6,909	83,365	30.5	35.6	15.5	14.9
Kentucky.....	2,157	30,752	47.7	44.6	28.0	25.8
Louisiana.....	2,954	60,060	32.4	30.7	21.0	20.4
Maryland.....	362	4,173	56.0	49.5	39.0	36.1
Mississippi.....	513	11,961	37.8	39.2	14.0	18.4
North Carolina.....	5,618	16,228	42.8	43.9	18.5	19.2
Oklahoma.....	3,459	40,905	32.8	29.2	13.5	15.3
South Carolina.....	2,047	27,507	27.9	36.4	15.5	17.8
Tennessee.....	2,327	21,572	43.0	43.0	26.0	25.1
Texas.....	6,897	67,915	28.3	30.2	19.0	19.5
Virginia.....	3,203	25,515	48.9	45.9	28.5	25.2
West Virginia.....	598	2,053	52.2	48.0	30.5	31.0
Total and averages for States represented.....	50,909	543,889	34.5	38.4	19.2	21.3
Average for United States.....					24.4	26.0

Number of farmers demonstrating, number of acres demonstrated, average yield of oats on demonstrations in 1916, three-year average on demonstrations (1914-1916, inclusive), and Bureau of Crop Estimates figures for the same period.

State.	1916		Average yield per acre for demonstrations (bushels).		Bureau of Crop Estimates figures (bushels).	
	Number of farmers demonstrating.	Number of acres demonstrated. ¹	1916	Three-year average, 1914-1916.	1916	Three-year average, 1914-1916.
Alabama.....	2,747	30,151	27.9	34.4	17.5	19.5
Arkansas.....	1,440	13,597	33.7	34.3	21.0	24.0
Florida.....	159	2,542	22.8	27.5	15.0	17.6
Georgia.....	9,289	40,386	44.0	43.8	19.5	19.6
Kentucky.....	362	4,200	32.5	34.5	21.0	22.6
Louisiana.....	544	10,650	30.3	37.4	19.0	22.3
Maryland.....	65	393	39.2	37.7	29.5	30.1
Mississippi.....	249	6,508	32.7	33.2	18.0	20.8
North Carolina.....					17.5	
Oklahoma.....	819	11,142	35.5	40.7	13.0	22.5
South Carolina.....	1,075	15,453	31.5	31.7	18.0	19.0
Tennessee.....	41	288			21.0	22.8
Texas.....	185	4,466	40.0	41.8	28.5	29.6
Virginia.....	678	4,895	29.0	30.7	23.0	21.5
West Virginia.....	43	143	26.3		23.0	
Total and average for States represented.....	17,688	144,814	34.0	37.0	20.3	22.4
Average for United States.....					30.1	32.3

¹ Includes cooperators.

Number of demonstrations, number of acres demonstrated, average yield per acre of cotton on demonstrations in 1916, and seven-year average on demonstrations (1910 to 1916, inclusive), and Bureau of Crop Estimates figures for same periods.

State.	1916		Average yield per acre in demonstrations (pounds seed cotton).		Bureau of Crop Estimates figures (pounds seed cotton).	
	Number of farmers demonstrating.	Number of acres demonstrated.	1916	Seven-year average, 1910-1916, inclusive.	1916	Seven-year average, 1910-1916, inclusive
Alabama.....	4,384	55,398	632	1,026	234	496
Arkansas.....	7,170	49,173	1,074	1,012	624	572
Florida.....	127	535	.....	769	315	393
Georgia.....	4,620	63,195	766	1,270	495	592
Louisiana.....	1,353	28,533	872	909	525	495
Mississippi.....	319	18,694	1,203	1,111	369	519
North Carolina.....	1,008	5,675	1,271	1,381	645	768
Oklahoma.....	1,822	20,618	821	813	462	514
South Carolina.....	1,736	33,553	997	1,309	465	674
Tennessee.....	821	6,838	1,183	1,251	618	606
Texas.....	4,565	50,150	850	874	471	508
Virginia.....	156	1,253	1,441	1,144	945	795
Total and average for States represented.....	28,081	333,615	896	7,425	.....	3,928
Average for United States.....	.....	.....	.....	.....	468	552

NOTE.—The lint-cotton estimate has been multiplied by 3 to determine the estimated yield in seed cotton.

The following summary shows the diversity of county-agent work and some of the results consolidated from the reports from all county agents in the Southern States for the year 1916. As already pointed out, there were 2,508 community clubs organized actively cooperating with the county agents in this work. The total membership of such clubs was 78,660. Adding these to the number reported for the previous year and allowing for some reductions and discontinuances, it may safely be said that there are upwards of 3,800 community clubs, with a membership of more than 100,000 farmers actively cooperating with the county agents in all of their field work.

As not all of the territory has yet been organized with community clubs, it should be stated that there are 119,134 individual farmers enrolled as demonstrators. This number includes, of course, many who were members of the community clubs before mentioned, but it also includes demonstrators in territory where there is little if any organization.

There were 107,443 acres of wheat demonstrations making an average yield of 18.3 bushels per acre, 43,865 acres in alfalfa, 10,386 acres in red clover, 74,872 acres in crimson clover, 6,274 acres in sweet clover, 231,383 acres in cowpeas, 29,868 acres in soy beans, 36,497 acres in peanuts, 176,731 acres in velvet beans, 36,607 acres in mixed grasses for hay, 81,060 acres in other miscellaneous forage crops, 11,145 acres in Irish potatoes, and 4,049 acres in sweet potatoes. There were conducted 5,071 demonstrations in home orchards, involving a total of 544,658 trees, and county agents gave assistance

in spraying, pruning, and caring for 32,252 orchards, having a total of 3,169,778 trees.

Through the influence of agents and specialists the following pure-bred animals were brought into the various States: Horses, 3,202; dairy cattle, 8,208; beef cattle, 14,544; hogs, 29,636; sheep and goats, 2,299. In the 2,982 poultry demonstrations conducted there were 163,330 birds. Farmers have been induced to treat for diseases and pests 1,287,907 head of cattle, 1,143,330 hogs (including 528,988 hogs vaccinated for cholera), 12,733 sheep, 44,456 horses; county agents personally treated 411,908 hogs for cholera. Assistance and advice were given in the erection of 4,222 buildings; there were installed 2,464 home water systems and 1,679 home lighting systems; 26,797 homes were screened and 24,075 fly traps installed; 2,237 telephone systems installed; 20,589 new pastures established; 22,776 acres tile drained and 196,213 acres drained by ditch; stumps were removed on 179,382 acres; 463,856 acres of land were terraced; 26,754 home gardens started; 482,202 acres planted to cover crops for soil improvement; 81,389 new implements bought; 2,829 dipping vats and 4,367 silos constructed; 45,154 farmers instructed in the care of farm manure; 19,307 farmers were induced to use lime; 127,131 farmers were instructed in the use of fertilizers; 59,387 farmers were induced to field select seed; 1,117 communities were organized to buy fertilizers cooperatively; agents in the work made 809,714 visits to farmers and others interested and traveled 3,590,567 miles, and 373,015 farmers called at the agents' offices; 27,458 meetings were held under the auspices of the agents; the total attendance at these meetings was 3,502,193; department bulletins distributed by agents, 563,441; extension and college bulletins distributed, 277,194.

NEGRO WORK.

Agricultural extension work among negroes by negro men and women agents has grown during the past year in equal ratio with the work among white people. The negro work is usually carried on in cooperation with the State agricultural college for negroes in States having them. Negro agents are appointed only in sections having a large negro farming population. This work is now organized in the following 11 States: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Virginia, and Maryland. There is a total of 63 men and women agents working with the negro farmers in their territory. To pay the salaries of these agents \$73,050.24 extension funds are being used. A very large number of excellent demonstrations have been carried on by negroes under the instructions of white agents. Negroes receive the demonstration instructions willingly, and as a rule carry them out quite as well and often better than white demonstrators.



FIG. 1.—A FIELD DEMONSTRATION IN COTTON GROWING.



FIG. 2.—LOCAL EXTENSION AGENT, TUSKEGEE, ALA.



FIG. 1.—A FIELD DEMONSTRATION IN BOYS' CLUB WORK.



FIG. 2.—BOYS' PIG CLUB JUDGING AT THE STATE FAIR.

Clubs have been organized among the negro farm boys and girls and excellent results obtained. Home-economies work for negro women has been carried on quite successfully. There has been notable improvement in the farms, live stock, buildings, and homes of many negro families, due to the efforts of the agents. In some sections whole negro communities have been reached and benefited.

The following table shows the work of the negro agents in Alabama, Mississippi, and Virginia, which were the only States reporting separately on negro work:

Results of negro demonstration work in Alabama, Mississippi, and Virginia.

Crop.	Demonstrators.			Cooperators.		
	Number.	Acreage.	Average yield per acre.	Number.	Acreage.	Average yield per acre.
Corn.....	765	3,734	35.2 bushels...	1,919	3,801	23 bushels.
Cotton.....	238	1,139	788 pounds....	735	2,159	436 pounds.
Oats.....	197	971	25.6 bushels...	781	1,481	16.3 bushels.
Wheat.....	192	793	16.1 bushels...	518	1,215	10.5 bushels.
Rye.....	72	318	.....	.....	.....	.....
Hay, forage, and cover crops..	517	1,490	.....	346	1,019	.....
Summer legumes.....	681	3,318	.....	1,872	7,475	.....
Potatoes.....	111	4,973	.....	.....	.....	.....

BOYS' CLUBS.

The agricultural clubs among boys in the territory of the Office of Extension Work in the South have developed along the lines outlined in the report for 1915. The enrollment in all club activities was 75,605, an increase of 12,763 over the enrollment in 1915. This enrollment may be classified as follows: Corn, 37,312; peanuts, 1,938; potatoes, 1,202; grain sorghums, 2,079; cotton, 3,134; four-crop, 1,457; miscellaneous plant clubs, 2,341; pigs, 23,167; baby beef, 974; and poultry, 2,001. The enrollment by States was a follows:

Enrollment in boys' clubs by States, 1916.

State.	Corn.	Four-crop.	Cot-ton.	Pea-nut.	Po-tato.	Grain-sor-ghums.	Mis-cella-neous.	Pig.	Baby beef.	Poul-try.	Total.
Alabama.....	3,297	576	.....	.....	.....	.....	.....	4,111	.....	.....	7,984
Arkansas.....	3,035	.....	252	307	.....	.....	.....	2,031	.....	.....	5,625
Florida.....	1,088	.....	.....	.....	.....	.....	.....	131	.....	.....	1,219
Georgia.....	7,250	835	875	.....	.....	.....	2,210	2,545	.....	.....	13,715
Kentucky.....	1,447	.....	.....	.....	.....	.....	.....	983	.....	.....	2,430
Louisiana.....	1,706	.....	.....	.....	.....	.....	.....	2,175	.....	.....	3,881
Maryland.....	565	.....	.....	.....	80	.....	.....	44	.....	17	706
Mississippi.....	4,204	.....	.....	.....	.....	.....	.....	2,899	463	.....	7,566
North Carolina.....	3,265	.....	.....	.....	.....	.....	.....	1,349	.....	.....	4,614
Oklahoma.....	2,639	46	1,162	860	.....	1,084	.....	2,003	14	.....	7,808
South Carolina.....	1,027	.....	.....	.....	.....	.....	.....	1,047	.....	.....	2,074
Tennessee.....	1,566	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,566
Texas.....	2,734	.....	827	656	.....	995	43	3,077	435	.....	8,757
Virginia.....	2,100	.....	18	115	41	.....	88	212	72	.....	2,646
West Virginia.....	1,389	.....	.....	.....	1,081	.....	.....	560	.....	1,984	5,014
Total.....	37,312	1,457	3,134	1,938	1,202	2,079	2,341	23,167	974	2,001	75,605

The following table shows some of the results of boys' club work:

Results of boys' club work, 1916.

State.	Corn.				Cotton.			Potato.			Peanut.		
	Number reporting.	Average yield per acre (bushels).	Average cost per bushel.	Number making 100 bushels.	Number reporting.	Average yield per acre (pounds seed cotton).	Average cost per acre.	Number reporting.	Average yield per acre (bushels).	Average cost per bushel.	Reporting.	Average yield per acre (bushels).	Average cost per bushel.
Alabama.....	871	36.25	\$0.58	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas.....	854	37.2	.384	4	50	1,200.0	.....	.....	.....	.....	47	38.87	.....
Florida.....	450	42.0	.38	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia.....	1,551	41.6	.40	9	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kentucky.....	254	65.1	.31	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana.....	513	46.0	.46	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	205	62.1	.312	3	.....	.....	.....	56	198.56	\$0.334	.....	.....	.....
Mississippi.....	568	42.47	.53	10	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Carolina.....	891	54.8	.392	33	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oklahoma.....	602	35.87	.395	3	298	941.9	27.47	.....	.....	.....	91	36.8	\$0.45
South Carolina.....	488	42.6	.44	(1)	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee.....	858	51.57	.3752	12	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas.....	331	36.6	.375	0	82	942.8	24.52	.....	.....	.....	76	41.1	.257
Virginia.....	638	54.09	.327	40	.....	.....	.....	.....	.....	.....	39	58.47	.41
West Virginia.....	362	56.1	.31	9	.....	.....	.....	469	192.00	.349	.....	.....	.....
Total.....	9,427	44.42	.3946	.....	30	.....	.....	525	.....	.....	253	.....	.....

¹No data.

There were also four-crop-rotation clubs in Alabama and Georgia and grain-sorghum clubs in Texas and Oklahoma. The rotation clubs grew corn, cotton, oats, and hay. The average yield per acre of the 69 members reporting in Alabama was 46.34 bushels corn, 819.8 pounds seed cotton, 37.94 bushels oats, and 3,057.32 pounds of hay. The average yield per acre of the 71 reporting in Georgia was 49.16 bushels corn, 1,174.25 pounds of seed cotton, 37.77 bushels of oats, and 2,982.25 pounds of hay. The average yield of the 165 grain-sorghum club members reporting in Oklahoma was 27.45 bushels per acre, and of the 42 members reporting in Texas was 34 bushels per acre.

It will be observed from the foregoing tables that the corn clubs still lead in the territory. Climatic conditions during the past year militated against large yields. The average yields obtained in boys' clubs in Alabama, Arkansas, Georgia, Mississippi, Oklahoma, South Carolina, and West Virginia were less in 1916 than the average obtained for the three years preceding.

Potato clubs have been organized in Maryland and West Virginia for the past two years. The average 10-year yield, 1906-1915, for these two States was 86 bushels per acre. The average of the boys reporting from these States in 1916, as is shown in the above table, was at the rate of 195 bushels per acre.

Peanut clubs were organized in Virginia in 1914. These clubs are rapidly extending into other Southern States.

Rotation clubs, in accordance with the plans named in the report for 1915, have been organized in the several States.

Farm-makers' clubs for negro children were organized during the year in several States. Much work has been done every year among negroes, but the club work as a separate project was begun in 1916. The following table will show that a good beginning has been made:

Enrollment in farm-makers' clubs for negro children, 1916.

State.	Corn.				Cotton.			
	Number enrolled.	Number reporting.	Average yield per acre (bushel).	Average cost per bushol.	Number enrolled.	Number reporting.	Average yield per acre of seed cotton.	Average cost per pound of seed cotton.
Arkansas.....	265	100	30	.....	26	15	803	.....
Florida.....	158	78	34	\$0.355	.....	.....	.....	.....
Mississippi.....	375	(1)	(1)	.....	.....	.....	.....	.....
North Carolina.....	1,201	53	47	.31	.....	.....	.....	.....
Oklahoma.....	375	22	40.4	.423	55	15	1,104	\$0.023
Virginia.....	177	(1)	(1)	.....	.....	.....	.....	.....
Total.....	2,551	253	35.9	.....	81	30	953.5	.....

¹ No data.

The numbers in the pig clubs are constantly on the increase. These clubs are promoted in cooperation with the Animal Husbandry Division of the Bureau of Animal Industry and have proven to be very popular. Thousands of pure-bred pigs have been distributed among the boys and excellent results have been obtained. Most thoughtful and observing men now recognize that the boys' pig clubs have made well-bred pigs common in the South. They are to be found and are produced in many sections where a well-bred hog was unknown five years ago. The above table shows that 23,167 club members grew pigs. The costs per pound of gain was between \$0.036 in Georgia and \$0.06 in Oklahoma. The reports show that the average profit made by members where grazing crops were used was \$22.18 and where grazing crops were not used it was \$11.25. "Hog and hominy" has been the slogan in many States during the past year. The growing of food for man and beast has been urged upon the boys by all agents.

Baby-beef clubs were organized in only four States. The average cost of growing baby beeves in Mississippi was \$4.60 per hundred pounds. The lowest profit made by a member in Texas, making a complete report, was \$6.20, and the highest was \$58.88. The average profit made by members in Oklahoma was \$22.94.

The club work is being used more and more every year as a home project for school work by teachers in public schools. In some States credits for graduation are given for agricultural club work. Community clubs are being organized throughout the territory under local leadership. In the meetings of the clubs agricultural problems of the members are discussed and the boys learn a limited amount of parliamentary usages. Short courses for club members have been provided in nearly all of the States. In these short courses practical instructions are given to the boys on many lines of agriculture. The boys attending these courses are usually prize winners, and have their expenses paid while attending the camps or schools. Many boys have been inspired by the work to continue their studies in the State agricultural colleges. There are a number of county agents now in the extension work who received their first training in agriculture in these clubs.

The total amount expended for boys' club projects, including pig clubs in the 15 Southern States, was \$84,441.69.

HOME-DEMONSTRATION WORK AND GIRLS' CLUBS.

The year 1916 marked extraordinary progress in the development of the home-demonstration work for farm women in the Southern States. Women to the number of 22,048 enrolled and made demonstrations under the direction of 451 agents. Among these demonstrators 1,042 clubs were organized and 27,260 meetings were held, with a total attendance of 476,366. These club organizations are the outgrowth of individual demonstrations and have been developed through the initiative of the women themselves when they have learned the benefits to be derived from group effort. In addition to the home demonstrations here outlined many clubs have undertaken school and community improvement and have notably increased social intercourse in their communities. As this organization grows in the different States it is usually found necessary to have one State agent, two or more district agents, and a few specialists in home-economics line.

In Darlington County, S. C., in the fourth year of home-demonstration work in the county, there are 19 women's clubs, enrolling 457 members, which is practically equal to one-half of the white-owner farmers of the county. The development of this work has necessitated the employment of an assistant to the county home-demonstration agent, and both women are employed for the entire year.

The plan of work includes the organization of women for receiving instructions and carrying on demonstrations in activities which are of fundamental importance in rural homes. In many instances em-



FIG. 1.—COUNTY HOME-DEMONSTRATION AGENT READY TO START ON A DAY'S WORK.



FIG. 2.—GIRLS' CANNING-CLUB DEMONSTRATION.

phasis is placed upon productive industries which have a direct economic value in contributing to the farm income. In this connection activities along the lines of poultry husbandry, vegetable and small fruit gardening, butter making, canning, and the cooperative grading and marketing of products are eagerly undertaken. An instance of effort of this kind is illustrated in two Mississippi "egg circles," which in six months sold eggs to the value of \$982, gaining by this cooperative marketing approximately \$330.

The work for women has been stimulated largely by the club work done by the girls. The agents have secured the confidence of the mothers through the girls, and the work done by the club members has been suggestive and inspirational to the adult women generally. This is indicated by the fact that the women demonstrators have put up 1,735,697 containers of canned products worth approximately \$419,422.12. The women have also cultivated 2,604 winter gardens and have sold \$106,794.41 worth of poultry products.

It is a part of the logical evolution that the women should carry on demonstrations in the utilization of the products grown and put up by them and by the girls. Thus, it is noted that 12,729 demonstrations were made in cooking. Furthermore, the agents supervised and directed the making of 3,290 fireless cookers and 2,171 iceless refrigerators. These time and labor saving devices, as well as many others, are made and used in a supplementary way to the demonstrations with vegetables, fruits, meats, bread, and butter. It is interesting to note that these women workers have been responsible for the making of 5,025 flytraps, 293 wheel trays, 486 ironing boards, and 4,023 other miscellaneous articles. They have also caused 361 water systems to be installed and had 1,138 houses screened. With the cooperation of women's clubs and business organizations, 101 rest rooms have been established in towns. Many of these have connected with them demonstration kitchens and home-economics libraries, which are used as places of meeting in addition to providing for the comfort of individual women. No more important work has been undertaken than conducting demonstrations in the making of good butter on the farm. During the past year 92,649 pounds of butter were produced under demonstration methods. In conducting this work the agents had the following equipment made or purchased: Six hundred and thirty five butter paddles, 624 butter molds, 241 thermometers, 214 shotgun cans, 180 barrel churns, and 79 butter workers.

While doing unusual work with the adult women the agents have not neglected the girls. They enrolled in the 15 Southern States in 1916 a total of 56,679 girls. Of this number, 37,964 were enrolled in the canning clubs and 9,656 in the poultry clubs. Five thousand eight hundred and eighty-seven girls took the instruction in bread

work until they could make demonstrations that were highly instructive and helpful. Sewing has been taught in the making of 23,767 uniform caps and aprons and 3,875 dresses, and 14,348 miscellaneous articles useful in home and club work. Three thousand one hundred and seventy-two girls did special work with fall and winter gardens.

In the canning clubs the girls put up 2,354,854 containers from their one-tenth acre plats, and in addition 1,054,196 other containers from the farm and orchard. The total value of these products is \$537,247.55. Since the work has been graded so that the second, third, and fourth year girls do advanced work with catchups, sauces, preserves, jellies, jams, and marmalades, these products have improved greatly in quality and in value. With the present high prices of such things these estimates are probably rather low.

The plan of organization and conduct of the home-demonstration work, both for women and girls, is now sufficiently understood, as the result of the successful object lessons already established, that more marked and significant progress will doubtless be noted from year to year.

The total amount expended in the 15 Southern States for home demonstration and girls' club work, including poultry clubs, was \$359,003.25.

SPECIALISTS.

The work of specialists is an important branch of the extension division in each State. Under this division are a number of projects with leaders assigned for each line of work to be carried on. The chief duties of the specialists are to assist the county agents with difficult problems requiring special scientific knowledge and training, to assemble material from the results of the work in the experiment stations, in the colleges, and in the United States Department of Agriculture or from any other reliable sources of information for the use of the county agents and the farmers in the State, and to plan and carry out special demonstrations through county agents to illustrate and secure the adoption of improved farm practices. Efforts are made in most States to plan the itineraries of the specialists to conform with those of the county agents. Special demonstrations being carried out by the specialists are planned cooperatively with the county agents where there are such. An important part of the specialists' work is to assist in extension schools, general agricultural meetings, and in emergency work in all parts of the State. There are now employed in the extension division of the South 201 specialists.

Dairy specialists.—There are 26 specialists in dairying in the 15 Southern States. They have worked in close cooperation with the county agents and a great deal has been accomplished for the im-

provement of the dairy industry in the South. Farmers have been influenced by the dairy specialists to secure better dairy animals, helped to organize cow-testing associations, to establish cream routes, furnished plans for dairy buildings, aided in working out balanced rations for dairy cows, and assisted in many other ways in dairy improvement. The specialists also have done much to encourage better pastures and the proper handling and marketing of dairy products. In most of the States this work was carried on in cooperation with the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture.

Live-stock specialists.—There are 36 specialists employed in animal-husbandry work. Their work consists in efforts to increase the number and improve the quality of all kinds of live stock. Working with the county agents, they have made special efforts to influence cotton farmers to keep cows and hogs sufficient at least for their own needs and to grow their own necessary feed. Special efforts also have been made to work up an interest in better bred stock of all kinds. The specialists have aided in bringing in pure-bred live stock for breeding purposes, assisted farmers in planning pastures, erecting silos, building barns, etc., have given instructions in the feeding and care of beef cattle, and also aided in the cooperative marketing of stock.

Poultry.—In most States this work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. There were 11 poultry specialists. In most of the Southern States the poultry specialists carried on their work in cooperation with women agents in home demonstration and girls' club work. They assisted in the organization of poultry clubs, egg-selling associations, etc.

Agronomy.—There are 19 specialists in agronomy to assist the county agents and farmers by giving instruction in the best methods of growing field crops, treatment of soils, use of fertilizers, etc. Much good work was done by the specialists in getting farmers to improve the seed of corn, cotton, and other farm crops. There was a continual demand on the specialists for lecture work at extension schools and other farmers' meetings. They were called upon also to solve many difficult technical problems in agronomy.

Horticulture.—There were nine specialists in horticulture. Their special work has been to encourage growing of home orchards and to teach the people how to care for them. They have given helpful suggestions and instruction to farmers and fruit-growing associations in pruning and spraying orchards and standardizing products. County agents have been greatly benefited by the lectures and demonstrations of the specialists.

Agricultural engineering.—There are nine specialists in this work, which includes those specialists in charge of drainage, terracing, rural sanitation, and similar lines of work.

Rural organization.—The 10 specialists who were engaged in this work have assisted in organizing a large number of communities for mutual benefit. It is the county agents' part to do the follow-up work with these associations until they are self-sustaining. The organizations formed have for their objects, among other things, cooperative buying and selling, rural credit, community welfare, etc.

Markets.—Seven specialists were employed in this work in cooperation with the Bureau of Markets. Valuable service was rendered the farmers in marketing fruits, vegetables, cotton, and other farm products. Instruction was given in proper methods of grading, packing, and standardizing products to meet the requirements of the market centers.

There are also one or more specialists in each of the following lines: Entomology, plant diseases, truck crops, home economics, animal diseases, pecans, boys' clubs, extension schools, and hog-cholera control.

The work of the specialist is so closely aligned with that of the county agent that entire credit for the work can not be claimed by either. The county agent arranges the preliminaries for the technical work of the specialist and often looks after it in the specialist's absence. The cooperating agencies should each be furnished with a full and complete report of the work done by the specialists.

OUTLOOK.

The analysis of the results from the second year's operation under the Smith-Lever Act of the cooperative extension work in the South confirms the idea that the county-agent plan is the most effective of all methods of reaching and helping the masses of the country people. The scope of the work has been greatly extended and the advice and instruction of the extension workers have been much more widely disseminated. The plan of working through the community organization, referred to in the outlook of the last report, has been developed; and through these organizations the county agent has been enabled not only to reach more people but to do it more effectively.

The work in every State has continued to receive the financial, the official, and the moral support of practically all the people. The increased appropriations have been used mainly for the strengthening of the lines of work that were already started and in the employment of more thoroughly qualified agents.

There is a much better spirit of harmony and good feeling between the various agencies attempting to serve the agricultural interests of the States than there was a year ago.

The future plans of the work provide for the extension of the service into all those communities which have not yet been reached. The expansion of the different lines of extension work has been as rapid as the good judgment of the directing force and the accumulated funds would permit.

With the added experience and with a larger vision of the possibilities for service to the people, it is felt that the outlook for the cooperative extension work is sufficiently promising to satisfy all the reasonable expectations of its most enthusiastic supporters.

STATE REPORTS.

ALABAMA.

Extension Division, Polytechnic Institute, *Auburn*.

J. F. DUGGAR, *Director*.

Organization and administration.—There were no changes in the supervisory force during the fiscal year ending June 30, 1916. The general plan of work was the same as last year. The organization consists of the director assisted by a State agent, three white district agents, and one negro district agent; the superintendent of junior extension work; the State home-demonstration agent, assistant home-demonstration agent, an assistant in boys' corn-club work and an assistant in pig-club work. There were 75 county agents, 12 local agents in negro work, 27 home-demonstration agents, and 2 negro women agents. There are also 13 full-time specialists and 8 part-time specialists. This is an increase in the organization for the year of 1 county agent, 8 home-economics agents, 2 specialists, and 5 negro local agents.

The policy in the extension work during the year has been to strengthen the work already in operation, rather than to take up any new lines. This is especially true of the home-demonstration work, and the length of employment of the women agents has been increased considerably. Special campaigns were conducted during the year to prepare the people to meet the boll-weevil situation. A few special men were employed in this work, and quite a number of public meetings were held for the purpose of arousing the farmers to meet the ravages of the boll weevil more successfully than farmers in States farther west have done.

There was good cooperation between the State department of agriculture and the extension division, financial and otherwise. As in the preceding year, there was a continuance of cordial cooperation between the extension service and the Girls' Technical Institute, Montevallo, boards of commissioners, boards of education, cham-

bers of commerce, and the State department of education, as well as with several normal schools, agricultural schools, high schools, and other educational agencies.

Publications.—Seven circulars, or leaflets, were issued, containing 21 pages, a total of 125,000 copies. In addition, there were four issues of plate service, consisting of 43 articles, which were supplied to 139 of the weekly papers of the State. Bulletins of a general nature were mailed to a list of 22,000 farmers which is kept by the experiment station. Each agent keeps a supply of all bulletins for distribution as needed in his territory, and a great deal of literature is distributed through the agents personally. There is no complete mailing list as yet, but the extension literature is mailed out to the experiment station list and others who make request for it.

Finances.—The following funds were available for cooperative extension work in agriculture and home economies for the year ending June 30, 1916:

Smith-Lever, Federal	\$31, 492. 82
Smith-Lever, State legislature.....	5, 000. 00
Smith-Lever, county appropriations.....	15, 000. 00
Smith-Lever, local appropriations.....	1, 492. 82
United States Department of Agriculture, farmers' co- operative demonstration work.....	46, 000. 00
United States Department of Agriculture, other bureaus.....	4, 620. 00
State board of agriculture.....	25, 000. 00
Appropriations by Girls' Technical Institute.....	1, 000. 00
County appropriations not used as Smith-Lever offset..	10, 000. 00
Total	139, 605. 64

Smith-Lever funds were used in support of the following projects: Administration, printing, home economics and girls' club work, boys' clubs, county agents, movable schools, agronomy, specialists, rural organization, pig clubs, dairy, negro men and boys' work, negro women and girls' work, engineering, live stock (tick-freed), and marketing. Funds from the United States Department of Agriculture were used in support of the following projects: From farmers' cooperative demonstration work, administration, home economics and girls' club work, boys' clubs, pig clubs, and county agents; from other bureaus, dairying and live stock, agronomy, and rural organization.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—The county agents' work continues the most important feature of the extension division and there were employed during the year 1915-16 75 county agents at an average salary of

\$1,146.82 a year. Among the leading features which the agents continued to impress upon the farmers of the State were the securing of better live stock, more extended growing of forage crops and legumes as soil builders, improvement of pastures, assistance in the tick-eradication movement, and many other problems which the farmers had to meet.

The following is a summary of some of the activities of the county agents: Two hundred and sixty-two communities were organized for the purpose of improvement of farm conditions on a community basis, with a total membership of 7,006; 32 live-stock organizations were started in the State; 1,745 visits were made to schools by agents, to assist in outlining agricultural courses; 2,781 meetings were held in cooperation with the specialists, with a total attendance of 135,363; 1,390 field meetings were held, with an attendance of 13,717; 28,308 visits were made to demonstrators; 43,898 visits were made to co-operators and other farmers; 7,174 club members were visited; the county agents traveled 360,036 miles visiting farmers; 29,380 letters were written during the year; 117,378 bulletins distributed; 312 home orchards were inspected at different intervals, and 11,407 trees were pruned and sprayed under the supervision of the agent; 128 silos were built; 913 dipping vats built; 412 plans furnished by farm buildings; 1,864 plans for crop rotations; 99 home lighting systems installed, 159 water systems; 1,375 pastures started. There were brought into the State during the year 1,055 pure-bred beef cattle and 713 dairy cattle, besides several thousand good grades of both types of animals. The farmers were influenced to bring in 2,831 pure-bred hogs and the agents assisted in feeding demonstrations with 124,945 hogs and inoculated for cholera 67,926 hogs. The following table will furnish data on the field crops:

Some results of field-crop demonstrations in Alabama, 1916.

Crop.	Demonstrators.			Cooperators. ¹			Total.	
	Number.	Acreage.	Average yield per acre.	Number.	Acreage.	Average yield per acre.	Demonstrations.	Acreage.
Corn.....	1,395	24,407	² 27.7	3,099	32,358	² 21.7	4,494	56,765
Cotton.....	919	24,307	³ 630.0	2,603	28,614	³ 436.0	3,522	52,921
Oats.....	724	15,947	² 28.0	1,398	12,883	² 24.4	2,122	28,830
Wheat.....	342	2,713	² 12.8	790	2,000	² 12.8	1,132	4,713
Crimson clover.....	716	7,239	.....	.....	2,564	.....	716	9,803
Alfalfa.....	164	6,258	.....	.....	.....	.....	164	6,258
Cowpeas.....	620	10,179	⁴ 1.75	1,231	928	.....	1,851	11,107
Soy beans.....	276	1,943	.....	357	1,060	.....	633	3,003
Velvet beans.....	1,099	22,548	² 16.0	2,780	15,920	.....	3,879	38,469
Total.....	6,255	115,541	.....	12,258	96,328	.....	18,513	211,869

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds of seed cotton.

⁴ Tons of hay.

There was expended under this project for this fiscal year the sum of \$84,462.92.

Boys' clubs.—Boys' clubs were organized in each of the 67 counties of the State, with a total enrollment of 3,870. The four-crop clubs were organized in 18 counties, with a total enrollment of 571. The average yield of corn by those reporting was 36.4 bushels per acre, at an average cost of 58 cents per bushel. Nine boys produced over a hundred bushels per acre. A corn-club school was held in Auburn in July, 1915, and was attended by 221 boys from 64 counties.

Pig clubs.—Pig-club work was conducted in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The work was organized in 27 counties, with a total enrollment of about 4,063; 638 made reports; 534 reports of feeding records; average initial weight of pigs, 44 pounds; final weight average, 179 pounds; average first cost, \$4.40; average final value, \$16.71; average cost of gain per pig, \$5.16; average net profit per pig, \$7.15.

There was expended under this project for this fiscal year the sum of \$6,923.25.

Farm-demonstration work for negroes.—It has been the duty of all the white agents to carry negro demonstrators from the beginning, and by these means it has been possible to give a great deal of assistance to the negro farmers. There were 6 negro agents at the beginning of the year, and the number was increased to 12 during the year. These negro agents are supervised by a negro district agent. The white county agent has charge of all the agricultural work in his county and the negro local agent serves as his assistant to work with the negro farmers. The negro demonstration work is carried on in cooperation with Tuskegee Institute, and the district agent makes his headquarters there. The negroes have made good progress in learning better methods of cultivation, the better care of live stock, and in the production of more home supplies.

Movable schools and farmers' institutes for negroes were held throughout the State. The specialists and white agents assisted in these meetings. The following are some of the results accomplished through the influence of the negro agents: 54 clubs, or associations, were organized for the advancement of the agricultural interests of the community in which they were located; 336 field meetings were held; 4 county fairs and 15 community fairs were conducted; 987 acres of land were terraced; 673 compost pens constructed; 165 houses whitewashed; agents assisted in building 119 dipping vats; 163 head of live stock bought; agents made addresses at 946 meetings, with an attendance of 63,323; 4,881 letters written; 4,334 visits made to farmers and 200 conferences held; miles traveled, 45,590. The table following shows the field-crop demonstrations by negro farmers under the supervision of negro agents.

Some results of field-crop demonstrations for negroes, 1916.

Crop.	Demonstrators.			Cooperators. ¹			Total.	
	Number.	Acreage.	Average yield per acre.	Number.	Acreage.	Average yield per acre.	Demonstrations.	Acreage.
Corn.....	196	904	² 34.0	918	1,849	² 22.3	1,114	2,753
Cotton.....	142	457	³ 734.0	720	2,020	³ 398.0	862	2,477
Oats.....	65	381	² 27.8	560	940	² 16.2	625	1,321
Cowpeas.....	45	455	¹ 1.75	665	3,485	.....	710	3,940
Velvet beans.....	30	710	² 13.6	452	2,425	² 12.5	482	3,135
Peanuts.....	69	203	.....	348	675	.....	417	878
Total.....	547	3,110	.....	3,663	11,394	.....	4,210	14,504

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds of seed cotton.

⁴ Tons.

Negro boys' club work.—The boys' club work was just begun in the State during the last year and some assistance along this line has been given by all of the negro agents from the start; and, since there is now in the field a regular agent for looking after the club work among the negro boys, this will be hereafter one of the regular branches of the negro work.

Home demonstration and girls' club work.—The home-demonstration work was organized in 27 counties, being an increase of 8 counties over that of the previous year; 3,450 women and girls were enrolled, which is an increase of 739 members. The women agents were employed for an average term of 9¼ months, at an average salary of \$84.58 per month. Seven counties employed 11 assistant county agents for two months during the canning season. The women agents held 1,475 meetings, at which there was an attendance of 38,710. They made 9,313 visits to rural schools and homes of club members. There were 220 girls' canning clubs, with an enrollment of 2,260; 1,580 of the girls made reports of their work in gardening and canning. Girls who have been in the club for three or four years are encouraged to plant, in addition to their one-tenth acre vegetable gardens, perennial fruits. As a result, 102 have started permanent gardens, in which there have been planted 150 berry bushes, 640 fig trees, and 800 other fruit trees. High quality and standardization of products in the canning work is stressed. The girls have successfully used tin and glass for putting up tomatoes, beans, peas, peaches, berries, soup mixtures, and krout. Attractive packages in glass are being placed on the market by the experienced club girls, containing figs, pears, peppers, strawberries, watermelon rind, satsuma, kumquats, and cucumber products. These products are sold to housewives, merchants, hotels, restaurants, college dining halls, and factory and mill commissaries. Sixty-three

girls are attending city and county high schools, paying their expenses with canning-club earnings. The club girls made for their own use 1,307 caps and aprons, 714 uniform dresses, and 142 useful bulletin files. Fifty-five clubs received instruction from the women agents in basketry. This resulted in making 468 pine-needle baskets, which sold at from \$1 to \$5 each. The women agents taught 608 girls cooking and 88 bread making. One State short course and 20 county short courses of four days' duration were held for the girls and women. Sixty-nine girls and 14 county agents attended the State short course. Five hundred and sixty girls and 62 club women and 1,087 visitors attended and received instruction at the county short courses. Home-demonstration work for women was carried on in each of the 27 counties in connection with the girls' club work. Forty-eight clubs for farm women were organized, with a membership of 838 in 13 counties. The agents installed the following home conveniences during the year: Three hundred and twenty-nine fireless cookers, 88 iceless refrigerators, 30 folding ironing boards, 6 kitchen cabinets, 9 cheap waterworks systems, 19 shower baths, 235 flytraps, and 134 homes were screened and 18 rest rooms for farm women provided at county-seat towns. Thirty-four extension schools in home economics were conducted in the rural communities for two days each, at which there was an attendance of 4,520. Cooking, canning, gardening, and sanitation were discussed and practical demonstrations given. The total number of containers filled by both girls and women was 273,286, which was valued at \$72,210.33. Thirty-four poultry clubs were organized recently, with an enrollment of 352 members.

There was expended under this project for this fiscal year the sum of \$19,534.44.

Home-demonstration work for negroes.—A beginning was made in the effort to help the home makers of the negro race, by the appointment of one home-demonstration agent for negroes. In accordance with the general policy of conducting the negro work in cooperation with the leading negro educational institutions for that race, the first home-economics specialist for negroes was located at Tuskegee and most of the work done by her was in the counties of that part of the State. However, she assisted in extension schools for negroes in other parts of the State. Extension schools of agriculture and home economics were held in 14 counties, with an estimated total attendance of 6,768. In addition to the speakers furnished by the negro schools of the State, the specialists of the extension division were used in these schools the same as in those for the whites.

Extension schools.—The assistant in charge of junior extension and home economics also has charge of extension schools. The specialists of the division and the county agents assisted in these schools.

Separate sessions were held for whites and for negroes. Schools for whites were held in 22 counties, with an attendance of 2,650 people; for negroes in 14 counties, with an attendance of 6,768 people. These schools are maintained as a substitute for farmers' institutes.

Community programs.—The work of this project was conducted in cooperation with the Office of Markets and Rural Organization of the United States Department of Agriculture and was supervised by the extension division specialist in agronomy. This specialist divided his time between preparing programs for study by farmers' clubs throughout the State and assisting in movable schools. Once each month a program of study was prepared for mailing to all farmers' clubs in the State. These programs and suggestions were supplied for 150 community meetings, and 22 topics in agriculture and home economics were outlined in these programs.

Agronomy.—A specialist in agronomy is employed to give instruction to county agents and farmers and to assist in holding extension schools. He attended 110 meetings, with an attendance of 1,613. The assistant agronomist, who gives only a part of his time to extension work, attended 29 meetings, with an attendance of 4,111. The leader of this project divides his time between preparing programs for study by farmers' clubs and lecturing on agronomy subjects in extension schools. A monthly program of study was gotten up and mailed to all farmers' clubs in the State. This work was carried on in cooperation with the Office of Markets and Rural Organization, United States Department of Agriculture. Programs were supplied for 150 monthly meetings. Outlines were prepared for discussion at such meetings on 22 topics in agriculture and home economics.

Animal husbandry.—The extension specialist in animal husbandry is employed cooperatively by the extension division of the college and the Bureau of Animal Industry, United States Department of Agriculture. The work was confined chiefly to 38 counties that were tick-free. Twenty-six beef-feeding demonstrations were conducted with 2,242 cattle. With the assistance of the county agents, 30 livestock associations were organized, with 1,707 members. The specialist addressed 100 meetings, with an attendance of 3,514; wrote 537 letters; distributed 461 circulars and prepared 12 articles; helped construct 3 silos, installed 3 scales; held 12 judging demonstrations; influenced the bringing in of 19 pure-bred beef cattle.

Dairying.—The dairy specialist was employed jointly by the extension division and the Bureau of Animal Industry of the United States Department of Agriculture. He was actively engaged in a number of counties and has been one of the agents responsible for the rapid increase in the production of butter and in the establishment of creameries at Selma, Auburn, and Talladega. He participated

in 46 meetings, having an attendance of 1,692. He assisted in building 5 silos during the year and nearly all of these new silos were built in localities where demonstration silos had previously been erected as a part of the extension work of the preceding year. He gave 12 demonstrations in the use of the Babcock testers and in their continuous use; had 2 herd records kept; and purchased 6 pure-bred cattle for dairy farmers. One of his demonstrations in butter making resulted in raising the price received by a certain farmer from 20 cents per pound before to 30 and 35 cents after receiving instruction. In one community the sales of cream from the month of December, 1915, amounted to \$12. The next May they had increased to \$400. The Selma creamery rose from a monthly production of 4,000 pounds in June, 1915, to 11,013 pounds the following May. Meantime the number of patrons increased from 25 to 104.

Marketing.—The subject of marketing was presented by extension speakers at a large number of meetings and help was rendered to the county agents in organizing a number of cooperative marketing associations. The growers of Johnson grass and alfalfa were assisted in forming an association for a more satisfactory marketing of these hays. The principal work done in marketing was the giving of instruction regarding methods of organization for cooperative marketing, standardization of varieties of field crops and of other farm products, methods of packing, etc. One of the local marketing associations saved its members 20 per cent in the cooperative purchase of velvet-bean seed.

Agricultural engineering.—A part-time specialist was employed in agricultural engineering work. He divided the part of his time given to the extension work about equally between the services rendered county agents in working with the farmers in planning barns, silos, and other farm structures and in the utilization of labor-saving machinery. The other part of his extension time is given to women's work, especially home waterworks and factory conveniences. During the year plans were prepared and sent out for barns, silos, hay rakes, gates, etc. Blue prints were furnished for farmhouse structures; 1,300 letters were written; 14 meetings participated in; a number of surveys for farm and home waterworks were made; and 4 hydraulic rams installed.

Educational and demonstrational work with hog cholera.—The work under this project was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture, in cooperation with the State veterinarian. With the assistance of the county agents, numerous demonstrations were given in inoculating hogs and sanitation of lots and barns. Some work was done in organizing swine-breeders' associations, with a view to neighborhood control of hog cholera. Through the efforts of the county

agents, with the advice of the specialist along this line, the increase in the number of hogs raised in Alabama for home use and for sale has been phenomenal. A packing plant established at Andalusia has been one of the incentives to increasing reliance on hog raising on the part of the farmers in the southern part of the State.

OTHER EXTENSION ACTIVITIES.

Arrangements were made during the fiscal year for utilizing in extension work a small proportion of the time of the heads of some of the divisions of the college and experiment station. This was done in order to utilize their services in extension correspondence, in occasional meetings, and in giving expert advice to county agents or other full-time extension employees. The professor of animal husbandry, besides writing 2,500 letters for the extension division, was in frequent consultation with the dairy specialist and the beef-cattle specialist and also the pig-club agent, all these being associated in subject matter with this department. The professor in entomology and his assistants participated in 116 meetings, with an attendance of 23,800, and mailed out 2,800 letters. The professor of horticulture and his assistants took part in 16 meetings, with an attendance of 2,100.

OUTLOOK.

The extension work made progress during the year along all lines. Limited funds prevented as rapid expansion of some lines of the work as was hoped for. The salaries of county agents, as a rule, are too small to attract and hold the best men and women in the work. Special campaigns were successfully conducted for crop diversification, tick eradication, and for creating a greater interest in the growing of forage and soil-improving crops. Certain sections of the State suffered from the effects of the boll weevil, disastrous floods, and other unfavorable climatic conditions, and special attention was given to these stricken areas. The live-stock work has been encouraged in every way possible. Plans for coordinating and increasing the efficiency of the force are being worked out. Any increase in funds will be used in strengthening the lines of work already under way.

ARKANSAS.

Division of Extension Work, College of Agriculture, University of Arkansas,
Fayetteville.

J. H. MILLER, *Director*; W. C. LASSETTER, *Acting Director.*

Organization and administration.—The general plan of work and of organization is the same as that for last year. The following

changes occurred in the personnel of the force: J. H. Miller was made director and took charge of the extension force July 15, 1915. W. C. Lassetter became acting director October 30, 1916. An assistant director was appointed to have charge of the specialists and extension schools and to assist the director in his general administrative duties. The State agent in charge of the demonstration work is recognized as assistant director in charge of county-agent work, his duty remaining the same as in the past. The result of this organization is the creation of coordinate departments in the extension division. By this new arrangement all of the extension force devote their entire time to extension work. Members of the college teaching force and the experiment station force assisted in conducting extension schools and some other field work, but no part of their salary was paid from extension funds except traveling expenses while they were on actual duty for the extension division.

At the close of the year the organization consisted of a staff of 7 administrative and supervisory officers, 57 county agents, 32 home-demonstration agents, and 2 negro agents, which was an increase during the year of 4 county agents and 11 home-demonstration agents. A specialist in pig-club work and one in home economics were added during the year to the force of specialists employed, making nine in all. An assistant in home-demonstration and girls' club work was appointed and also a district agent to work among the negro women and girls. All extension workers report through their leaders to the director of extension and he reports directly to the president of the college.

There is no official agreement between the State department of agriculture and the extension division, but a friendly relation has existed and it is to be hoped that a closer cooperation will be worked out in the future. The State department of public instruction and the extension division have carried on some work cooperatively, but there is no written agreement between them. There is a friendly feeling between the division and the four district agricultural schools of the State, and these schools have furnished the extension division speakers in some of their extension-school work, the extension division paying the traveling expenses of these men while in the service. The agricultural commissioners of the railroads of the State have cooperated with the division in every way possible, especially in furnishing transportation along their lines to the members of the force, which enables the workers to cover much more territory than could have been done otherwise.

The profitable farming committee, an organization of business men of the State, has also rendered distinct service in giving publicity to the agricultural activities, helping to maintain the interest of the business men throughout the State. The newspapers have been

liberal in giving space for agricultural information furnished by the members of the extension force. The Arkansas bankers and business men have supported the work by contributing prizes in the way of scholarships to the boys and girls in the club work and rendered distinct service by contributing to the support of the local agents in the various counties. The quorum courts have been quite liberal in the support of the workers from the beginning. The influence of business men, and especially the profitable farming committee and the Memphis Business Men's Club, has greatly assisted in obtaining appropriations from county courts for the county agents' salaries, both men and women, and in securing the necessary appropriations from the State legislature.

Publications.—During the year 11 extension circulars were issued, aggregating 85 pages, with a total of 89,500 copies. The manuscript for these publications was prepared by members of the extension division and of the college and experiment station forces. Subject matter for these circulars and bulletins was submitted for approval to the heads of the proper departments of the college. Articles on timely agricultural topics were prepared by the editor of the division and also by the director, and these were furnished the newspapers in the form of ready print-plate material. This service was free of charge and carried each week 1 column of agricultural facts to 114 papers of the State. The editor also prepared news articles for the daily papers. These publications were distributed largely through the county agents. Copies were sent to all members of farmers' clubs, agricultural leaders, school-teachers, bankers, and others on request. A partial mailing list is maintained, and it is contemplated to make up a complete list in the near future.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$26, 678. 41
Smith-Lever, State	16, 678. 41
United States Department of Agriculture, farmers' cooperative demonstration work	40, 000. 00
United States Department of Agriculture, other bureaus	6, 220. 00
State appropriations	3, 318. 04
County appropriations	54, 152. 30
Other sources within the State	7, 136. 56
Total	154, 183. 72

Smith-Lever funds were used in support of the following projects: Administration, publication, county agents' and boys' club work, pig-club work, home demonstration and girls' club work, specialists, curing and marketing of meats, beef-cattle introduction, and funds

from the United States Department of Agriculture also were used in support of all these projects except publications.

A detailed statement of receipts and expenditures has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—The county-agent work is considered the most important branch of the extension division in that it is the one which comes in contact with the largest number of people. The county agent is recognized as a leader in extension activities in his county and all other activities of the extension division are governed accordingly. Specialists going into the counties are required to notify the county agent and make special arrangements for any work they desire to carry on in his territory. The county agent is expected to call on the specialists for assistance in any problems that may come up in his work at any time. The demand on the county agents for general information regarding problems in rural communities is rapidly increasing. The county quorum courts, the banks, commercial clubs, railroads, chambers of commerce, and individuals have been liberal in giving both financial and moral support to the county-agent work. The scope of the county-agent work has so increased and the county agent is now called on for information on so many different problems that it has been found necessary to map out a definite program or plan of work for the year covering each county. This idea has only partially carried this year, but plans are being made to carry on the work under definite detailed plans in every county in the future. The county agent is expected to spend one day in the week in his office and the remaining five days in the field.

The following is a brief summary of the activities of the county agents in the State: Two hundred and eighty-eight rural clubs were organized, with a membership of 5,878. These form a part of the organization work of the county agents and assist him in reaching a large number of people and in solving community problems. There were held 3,618 public and field meetings, with a total attendance of 142,085. Through the influence of the agents and specialists there were brought into the State 1,858 pure-bred cattle, 71 pure-bred horses, and 2,147 pure-bred hogs. They assisted in building 570 dipping vats. There were established 537 permanent pastures and 457 hog pastures. There were 407 silos built; 252 farmers were influenced to use lime. The agents helped to plan 573 farm buildings, establish 82 home water systems and 180 lighting systems, screen 4,762 homes and install 791 telephone systems, helped to establish 1,018 crop rotations and 1,020 drainage systems, induced 2,307 farmers to drain all or parts of their farms, and helped to remove the stumps from 290 farms. Through their influence 1,226 farms

were terraced and 5,662 home gardens planted. The total number of visits made by the agents was 61,014; the total number of miles traveled, 215,074. Number of department bulletins distributed, 84,659; State and college bulletins, 28,027. Seed was selected from the field by 2,995 farmers. The following table gives results with staple crop demonstrations:

Some results of field-crop demonstrations in Arkansas, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	1,484	1,112	19,220	² 33.5	6,105	68,963	² 24.3	7,589	88,183
Cotton.....	843	642	9,875	³ 1,074.0	6,327	39,298	³ 789.0	7,170	49,173
Tobacco.....	12	8	25	⁴ 875.0				12	25
Wheat.....	159	137	3,610	² 13.8	353	3,845	² 10.7	512	7,455
Oats.....	320	169	5,833	² 33.7	1,120	7,764	² 25.8	1,440	13,597
Rye.....	216	157	1,112	² 19.8	160	1,323	² 9.0	376	2,435
Hay, forage, and cover crops.....	1,000	691	9,814					1,000	9,814
Summer legumes.....	1,328	776	9,518					1,328	9,518
Potatoes.....	257	215	1,490					257	1,490
Total.....	5,619	3,907	60,497		14,065	121,193		19,684	181,690

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds of seed cotton.

⁴ Pounds.

The work done by the two negro agents does not represent the sum total of agricultural work done among the negroes in the State. Each white agent in the negro territory enlists negro demonstrators, and as a rule negro demonstrators follow instructions quite closely. The negro population of Arkansas is confined largely to the farming sections, and if the State's agriculture is to be developed properly it seems that the negro should be encouraged to improve in his farming ability. One of the negro agents is designated as a district agent for negro work and covers a large territory in the thickly negro populated counties, and consequently his work the past year has been more or less of a general character, the summary of which is as follows: Traveled 6,350 miles, made 50 corn demonstrations and 49 cotton demonstrations, organized 17 community clubs, with a total membership of 1,200, held 110 public meetings, with an attendance of 6,450. There were 25 field meetings; 140 boys were enrolled in corn clubs, 65 in cotton clubs, and 40 in pig clubs. He caused to be purchased 35 improved implements, started 4 permanent pastures, and assisted in holding 7 community fairs. There was only one local agent, and the summary of his report is given as follows: Enrolled 150 demonstrators and 60 club members, consulted with 131 farmers at headquarters, wrote

694 letters, traveled 3,169 miles, held 72 public meetings, with an attendance of 9,278, held 32 public meetings in cooperation with the other extension forces, with an attendance of 2,495, and organized 9 clubs in the county known as "progressive farmers' clubs." There were 14 clubs organized for women and girls, with a membership of 400. Progressive farmers' clubs met twice a month and discussed various agricultural problems. The agent assisted in holding three community fairs and one club rally, and reports that the prospect for increasing the effectiveness of his work for another year is very promising.

The boys' club work in Arkansas is supervised by a State agent in club work, who is assistant to the State agent in demonstration work and a special agent in charge of pig-club work. All club work is done through these two agents cooperating with the county agents, school authorities, business men, and women's clubs. Three thousand and seventy boys were enrolled in the corn clubs and 854 made complete reports, giving an average yield of 37.2 bushels per acre, at an average cost of 38.4 cents per bushel. Five boys made more than 100 bushels per acre. Two hundred and fifty-seven members were enrolled in the cotton clubs. Fifty members reported an average yield of 1,200 pounds of seed cotton per acre. There were enrolled in peanut clubs 312 boys, of which 47 made reports.

There was expended under this project the following sums: County agents, \$103,630.69, and boys' clubs, \$1,514.02.

Home demonstration and girls' club work.—Home demonstration and girls' club work in 1915-16 was organized in 31 counties. There were 32 county agents employed for an average term of 10½ months, 7 agents being employed for 12 months. This is an increase of 11 agents over the previous year. In 23 counties the local appropriations were made by quorum courts, and in the remaining 9 by private subscription. The work for the past year was supervised by one State and one district agent aided by two home-economics specialists. The specialist held 21 cooking schools in 45 counties, 20 of which were given to aid county agents, and lessons and programs have also been prepared for use of county agents and high-school teachers.

One annual and four district meetings were held for instruction of county agents. The district meetings were held at the agricultural schools, which cooperated by furnishing board and lodging for the agents. During the past year 1,315 meetings for women and girls have been held with a total attendance of 59,433. The State prize winners' short course for club girls was held in Little Rock, 53 girls attending. Valuable cooperation and entertainment at rallies and meetings was given by the Federation of Women's Clubs and by business men.

Two thousand four hundred and nine girls were enrolled in canning clubs; 1,927 reported that they had put up 113,170 containers of vegetables from their tenth-acre gardens, with a total value of \$27,224.69. In addition, these girls put up 43,202 containers from the farm and orchard. In six counties all the girls enrolled made reports. Forty-two canning clubs held 490 meetings during the year. One thousand three hundred and forty-nine caps and aprons were made by club members. Bread making was a regular part of the work done by canning-club girls.

In the work for women 1,679 demonstrators were enrolled, of which 1,147 did some active work. The women were organized in 48 clubs under the supervision of the county agents. Seven hundred and twenty-five demonstrations in meat and vegetable cookery and bread making were given. The agents themselves made a total of 880 demonstrations in homes and meetings for the instruction of women. One thousand and thirteen labor-saving devices were made and installed in the homes of the demonstrators, which included 204 fireless cookers, 128 iceless refrigerators, 22 flytraps, and 248 screens. One hundred and eighty-three pieces of labor-saving equipment were purchased under the advice of the agents. Butter-making demonstrations were confined to a limited area because the dairy specialist who cooperated with the women agents in doing this work was detailed to work in tick-free areas only. The butter-club members made during the past year 46,416 pounds, receiving an average of 6½ cents a pound more than they had been receiving for their butter. These demonstrators made 16 butter workers, 35 paddles and 11 molds, and purchased 25 barrel churns, 21 shotgun cans, 81 molds, and 33 dairy thermometers. In Jackson county 7 butter-club members sold 1,555 pounds of butter at 10 cents more than it had sold for heretofore. There were enrolled 625 girls and 273 women in the poultry clubs. They reported the total value of their products \$14,467.07.

Negro women's and girls' club work was conducted in 12 counties, 625 members were enrolled, 115 meetings were held, with an attendance of 8,162, and 245 home gardens were started. These demonstrators put up 10,354 containers of fruit and vegetables. Three hundred and fifty teachers and ministers gave active help in carrying on the work among the negro women and girls.

There was expended under this project for this fiscal year the sum of \$25,827.46.

Specialists.—There were eight full-time specialists employed in the extension division during the year. A large part of the time of the specialists in Arkansas has been devoted to extension schools and farmers' institute work. Their field work has been mostly along general lines. Plans are being worked out for definite specific demonstrations through the county agents for each specialist. It is

understood that the specialist on going into a county will notify the county agent, and where it is advisable the agent will accompany him on his visits to the farmers. The county agents are expected to call upon the specialists for assistance and render them all the help possible in locating their work or in reaching the farmers who have any special problems requiring their attention.

The specialist in agronomy, in addition to giving general and specific information regarding soil improvement, crop cultivation, etc., to individual farmers, delivered addresses at 249 meetings with a total attendance of 13,275. He visited 222 farms for the purpose of giving some kind of information regarding the soil or the crop management, gave 8 terracing demonstrations, 2 tile-drainage demonstrations, helped organize 18 farmers' clubs, prepared 18 articles for the press, 8 lessons on forage crops for farmers' clubs, prepared 10 circular letters, visited 9 county agents for the purpose of giving them instruction in soils and crops, assisted in judging special exhibits at 3 county fairs, and rendered a great deal of assistance in planning and establishing permanent pastures.

The live-stock specialist was in great demand throughout the State this year. The larger part of his time was taken up in conducting agricultural meetings where he discussed live-stock problems, emphasizing the necessity of improvement in the breeding stock and also stressing the importance of better pastures and more forage crops. The specialists as well as the county agents have advised the farmers when pushing live stock to go into the business gradually rather than to plunge. The majority of the farmers of the State, having heretofore devoted their attention almost exclusively to cotton growing, were not sufficiently qualified to go too extensively into stock raising at the start. This specialist has assisted in bringing into the State 1,196 head of pure-bred and grade stock for breeding purposes and 150 head for feeding purposes.

The specialist in concrete work assisted materially in working up an interest in State-wide tick eradication. The larger part of his time was spent in conducting demonstrations in the actual construction of dipping vats and preparing the solution for these vats and the actual dipping of cattle. This work was done largely through the county agent, who in all cases advertised the meetings and secured the attendance of the farmers, that they might get the instruction from the specialist while giving the demonstration. The specialist assisted in the construction of 34 vats, gave demonstration in preparing the solution for 22 vats, and assisted with the dipping of 1,500 cattle. He also gave demonstrations in vaccinating hogs for cholera.

It was thought best to confine the work of the horticultural specialist to the problem of giving specific instruction along the line of home

gardens and home orchards, and to reach the largest number of people it was necessary that he devote most of his time to extension schools in the way of giving lectures and practical demonstrations for the benefit of those in attendance. He spoke at 150 farm meetings, with an attendance of 6,809, visited 88 orchards, conducted 49 demonstrations in pruning and spraying, and made 27 special trips to assist county agents along agricultural lines. In addition to this, he prepared 17 articles for the press and 8 lesson outlines for agricultural study, prepared a garden-planting program for general distribution over the State and a leaflet outlining suggestions for home orchards.

The specialists in home economics endeavored to carry home-economics teachings to the maximum number of people by lectures and personal demonstrations at meetings of farm women and in the regular two-day schools for home-economics instruction, and also through the organization in schools, small towns, and country communities of home-economics study clubs. During the year these specialists addressed and gave demonstrations at 134 general farmers' meetings, 91 at the one-day cooking schools, and 72 at the two-day cooking schools, with an attendance of 3,366 women from the small towns and 1,129 from the country, making a total of 4,495 women in attendance. During the year 20 special home-economics outlines for use of girls and home-economics study clubs were prepared, also 12 special outlines for women. They organized 187 clubs, with a membership of 2,399.

The establishment of a definite system of marketing farm meats in small lots is a most important factor in developing the hog industry in Arkansas. With this in view, a specialist for that purpose was employed. Small ice plants were induced to prepare cold-storage rooms at an expense of \$75 or \$80 in which to chill and cure meats for small farmers having only a few hogs. During the summer of 1915-16 the meat from 3,408 hogs was cured and marketed by this plan in Arkansas through the efforts of the specialist in this work. Ten ice plants in Arkansas have already arranged to do this work and many others are planning to take up this industry. This work on the part of the ice factories opened up a market for the small farmer who has during the course of a year 1, 2, or 5 or 10 head of hogs for which there may not be any local market. The ice plant by equipping itself has provided a permanent market for these small lots of hogs and furnishes, therefore, the foundation for building up the hog industry which later can be handled in carload lots. Ten ice plants in Arkansas started work the past season and many others will take it up this season. This project is in cooperation with the Office of Markets and Rural Organization, United States Department of Agriculture.

The work of the specialist in beef-cattle introduction is confined to tick-free territory, in accordance with the provision of the act making appropriation for the United States Department of Agriculture for special animal-husbandry work in tick-free areas. The specialist receives part of his salary from Smith-Lever funds and the balance from the Bureau of Animal Industry. The work of the specialist during the year has been largely educational. Some work has been done in organizing movements for the purchase cooperatively of good live stock. Work was carried on under this project in 19 counties. The specialist addressed 60 meetings, with 1,749 attendance; wrote 2,424 letters regarding the work; prepared 2 articles; helped construct 2 silos; organized 2 live-stock associations; and brought into the State 375 breeding cattle.

Pig-club work.—The specialist in pig-club work is employed in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The actual work in the field is done through the county agents. Two thousand and fifty boys were enrolled in pig clubs, 1,800 were financed by the banks in the purchase of pure-bred pigs, and 892 made complete reports of their work. The average cost per pound of gain was 3.7 cents. Four hundred and twenty-four members used grazing or soiling crops for their pigs and made an average profit of \$15; 428 members who did not use grazing made an average profit of \$5. There was expended under this project for this fiscal year the sum of \$2,107.09.

OTHER PROJECTS.

Dairying.—The work of the dairy specialist was confined to tick-free territory. It was carried on in cooperation with the Bureau of Animal Industry, but was financed entirely by this bureau. The specialist conducted demonstrations in home butter making, promoted small dairies in a number of communities, giving instruction to the people in the building of dairy barns and silos and in the general care of dairy cattle. There has been a close cooperation between this specialist and both men and women county agents. He assisted in starting dairy-cow records and also cream routes, attended 9 State and National dairy meetings, judged special exhibits at 4 county fairs, attended 56 farmers' meetings, at which he delivered lectures and gave demonstrations on butter making. The attendance at these meetings was 4,285. He also gave 23 demonstrations in butter making, churning, etc., and held butter contests at 12 of these demonstrations. These contests resulted in the purchase of a large number of barrel churns, thermometers, and butter molds and workers. The specialist, with the assistance of the county agent,

organized a dairy association in Benton County and has introduced into that territory 20 head of pure-bred dairy cattle. He has prepared and sent out seven circular letters pertaining to the various phases of the dairy work.

OUTLOOK.

Reports on the extension work in Arkansas show decided progress. This is notably true regarding both divisions of the county agent and club work. The continued and increasing financial support from the county quorum courts is sufficient proof that the agents' services are appreciated by the people. The special campaign for diversified farming and the tireless efforts of all those connected with the extension division to create a sentiment for State-wide tick eradication have been remarkably successful. Diversification is proceeding rapidly in the State and at the same time the crops of cotton continue almost normal, but this crop is now largely a surplus or cash crop. Administration problems are being harmoniously adjusted. Well-thought-out plans of work are being adopted. High-class, well-qualified agents are being employed throughout the State. New counties are asking for the work and agents will be employed just as rapidly as the funds become available.

FLORIDA.

College of Agriculture, University of Florida, *Gainesville*.

P. H. ROLFS, *Director*.

Organization and administration.—No changes were made in the administrative forces of the extension division during the fiscal year 1915-16. No new projects were started, but several of those already in force were enlarged. One assistant was added to the home-demonstration work and a State agent for boys' club work was secured.

The present organization consists of the director, State agent assisted by 2 district agents supervising the county-agent work, State boys' club agent, State home-demonstration agent with 1 assistant and 2 district agents in charge of women and girls' work, 1 leader in negro club work and 1 negro local agent, 33 county agents, and 28 home-demonstration agents. This is an increase during the year of two county agents and four home-demonstration agents. There are no full-time or part-time specialists who are paid out of extension funds. The college faculty and experiment station forces are called upon for technical information and assistance in the extension work. The State legislature appropriates funds for

conducting farmers' institutes, which can be used for no other purpose, but, as the director is also superintendent of farmers' institutes and as a number of the extension force are usually the speakers at these institutes, it has been practicable to make the institutes a part of the extension service. Very cordial relations have existed between the extension division and the experiment station and college forces, and these have been especially helpful in giving their time and laboratory to the aid of the extension work. The State department of agriculture has given its kindly help and sympathy from time to time, but there is no written cooperative agreement between it and the extension division. The State department of public instruction has cooperated in connection with the public schools of the State. The various county superintendents of public instruction have been very helpful to the extension force in promoting the club work for the boys and girls. The county funds used in paying the salaries of the home-economics agents are supplied by the county boards of public instruction.

The county commissioners are authorized to levy a tax for the improvement of the agricultural conditions of the various counties. This tax is limited to one-half mill, but is more than necessary for carrying on the demonstration work. The legislature appropriated a sum necessary to offset the Smith-Lever fund, and in addition continued the appropriation of \$5,000 to the State commissioner of agriculture, which fund can only be used in the payment of the salaries of the county agents. The legislature also appropriated \$5,000 for the advancement of home-demonstration work in various counties, in addition to the \$3,750 which was appropriated to the Florida State College for Women for carrying on cooperative demonstration work.

Publications.—Five bulletins were published and distributed by the extension division during the year, with a total of 56,600 copies. The material for extension publications was gathered by members of the extension force. The publications of the college and experiment station and of the United States Department of Agriculture are freely used in the extension work in the State. Bulletins of a general nature are distributed to a mailing list of about 18,000 names. A supply of bulletins is furnished to each agent, who distributes them among the farmers as needed. Poster bulletins are sent out to the agents to be put up in conspicuous places. Manuscripts for several publications have been prepared.

Finances.—The following funds were available for cooperative work in agriculture and home economics for the year ending June 30, 1916.

Smith-Lever, Federal-----	\$16, 486. 94
Smith-Lever, State-----	6, 486. 94
United States Department of Agriculture, farmers' co- operative demonstration work-----	25, 000. 00
State appropriations-----	5, 000. 00
College appropriations-----	8, 790. 00
County appropriations-----	23, 747. 00
Other sources within the State-----	200. 00
Total-----	85, 710. 88

Smith-Lever funds were used in support of the following projects: Administration, printing, county agents, boys' clubs, home economics, negro boys' clubs, and live stock. Funds from the United States Department of Agriculture were used to support the following projects: County agents, boys' clubs, home economics, negro boys' clubs, and live stock.

A detailed statement of the expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—The county-agent project is the most important line of work of the extension division in Florida. The chief work of the county agents has been to secure the cooperation of farmers in establishing a permanent system of diversified agriculture in the State. The spread of the boll weevil makes this very necessary. In certain sections and under certain conditions it may possibly be best to continue growing special crops, but this is the exception rather than the rule to be adopted in the State. The great variety of products grown in Florida requires men of exceptionally good training and ability to succeed with the county-agent work. This is especially true in the trucking and citrus-fruit sections. Fortunately, the counties are willing to pay salaries sufficiently large to attract men capable of handling the situation.

The usual meetings for the instruction of the agents were held during the year. The county agents have found the field meetings on the demonstration of some farmer, to which the neighboring community has been invited to meet the agent and discuss the farm problems, very helpful and popular. Besides the continued work of the agents in securing demonstrations with the staple crops, attention has been given to special lines. This is particularly true regarding live stock. There is such an increasing interest along this line that the agents are making plans to develop the beef and dairy cattle and hog industries. Considerable attention has been given to the building of dipping vats, and hog-cholera control has occupied a great deal of the time of some of the agents. Tick eradication and hog-cholera work have been done in cooperation with the specialists

of the Bureau of Animal Industry, United States Department of Agriculture. The building of silos has been pushed, as far as the local agents are concerned, and the specialist rendered all the assistance possible with the time and funds at his disposal. The State and district agents were called upon as special judges at a number of the fairs, and these requests were complied with when it did not interfere with the regular work of these men. The agents have assisted in farmers' institutes in their counties, not only by taking part in the institute itself, but in giving it publicity and arranging all the details beforehand. Schools were visited by the agents where it was practicable and assistance given the teachers and others, especially in developing the club work.

The following are some of the activities of the county agents during the year: Forty-six farmers' clubs, with a membership of 1,551, were organized for the purpose of cooperative buying and selling of fertilizers and farm products and for other purposes looking toward permanent improvements on the farm. Total number of visits to farmers and club members, 22,624; number of miles traveled, 151,904; number of calls on agents for information relative to work at their offices, 13,481. The agents gave about 80 per cent of their time to field work and 20 per cent to office and miscellaneous work. The agents participated in 1,212 agricultural meetings of all kinds, with an attendance of 35,593; 12,039 office letters were written and 518 articles relating to the work; 36,886 circulars and bulletins of the United States Department of Agriculture and the agricultural college and experiment station were distributed by the agents; 552 schools were visited regarding the work; 37 schools assisted in outlining agricultural courses; 47 boys attended college from the results of the club work; 13 county fairs were held, at which 396 demonstrators, farmers, and club members exhibited; 605 farmers were induced to field select seed; 61 buildings were erected through the instruction of the agents; 25 building plans furnished; 27 lighting systems installed; 83 homes screened; 69 telephone systems installed; 116 new pastures established; 43 drainage systems established; 190 farmers assisted in draining their farms; 553 removed stumps; 812 gardens were started; 1,041 new farm tools and implements bought; 140 demonstrations given with home orchards; and assistance was given in pruning, spraying, etc., 686 orchards, containing 405,445 trees. There were brought into the State 172 pure-bred dairy cattle and 173 beef cattle, 101 pure-bred horses and 710 pure-bred hogs. Through the county agents' services there were 65,855 cattle dipped, 48,090 hogs treated for cholera, 74 dipping vats built, 64 filled with solution, and 500 farmers applied lime. It was estimated by the director that the increase in the yields of all demonstration farm crops, due to the agents' assistance and instruction, would amount to

\$156,665, and the increase in the value of live stock brought into the State and the improvement of those that were already in the State would amount to \$492,710.

There was expended under this project for this fiscal year the sum of \$43,623.49.

Some results of field-crop demonstrations in Florida, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing.	Acre-age.	Average yield per acre.	Num-ber.	Acre-age.	Average yield per acre.	Dem-onstra-tions.	Acre-age.
Corn.....	443	274	2,520	34.3 bushels.	225	1,657	18.6 bushels.	668	4,177
Cotton.....	101	40	423	.....	26	112	.....	127	535
Oats.....	105	80	2,325	22.8 bushels.	54	217	.....	159	2,542
Rye.....	42	28	328	.....	56	101	.....	98	429
Miscellaneous grains...	7	7	20	.....	3	4	.....	10	24
Hay, forage, and cover crops.	280	162	2,064	1.5 tons.....	.....	.....	.....	280	2,064
Summer legumes.....	166	56	2,970	2 tons.....	139	2,570	.....	305	5,540
Irish potatoes.....	35	11	94	90 bushels...	.....	.....	.....	35	94
Sweet potatoes.....	78	27	142	150 bushels..	.....	.....	.....	78	142
Total.....	1,257	685	10,886	.....	503	4,661	.....	1,760	15,547

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

Boys' club work.—The boys' corn-club work was extended into 41 counties, with a total membership of 1,191; 450 boys made complete reports, with an average yield of 42.1 bushels per acre, at an average cost of 38 cents per bushel. The highest yield was 119.6 bushels, at a cost of 26 cents per bushel. Half of the boys used improved varieties of seed corn and about this number planted peas or legumes in their corn. Two-year crop rotations have been adopted by some of the boys.

Pig-club work.—This is the first year that the pig clubs have been organized in the State. Three hundred and thirty-six members were enrolled and 102 pigs were exhibited at the county fairs. The pig club in Suwanee County was especially successful. Thirteen Poland Chinas made a gain of 1.04 pounds a day, at a cost of 4½ cents a pound, and 10 Duroc-Jerseys made an average daily gain of 1.24 pounds, at a cost of 4½ cents a pound. These pigs were purchased when about 3 months old and had been cared for five months when the records were compiled. It is expected that a much better showing in this work will be made next year. The bankers throughout the State have assisted in this work by furnishing the boys money with which to buy the pigs on their personal notes at 6 per cent interest. The notes are made payable in one and one-half years in order to give the boy time to raise a litter of pigs and sell enough to pay the note.

The boys' short course in agriculture for club members was held for one week in December at the State agricultural college at Gainesville and 73 boys from 31 counties attended. Lectures were given in the mornings and the afternoons were spent in giving the boys practical lessons on the experiment station grounds and in judging live stock.

There was expended under this project for this fiscal year the sum of \$3,351.44.

Home-demonstration work.—In the home-demonstration work there is a State agent in charge, located at the Florida State College for Women, Tallahassee. This college is cooperating in all the women's work in the State. The State agent has two district agents who assist her in the administration of the work and the supervision of the county agents. There were 28 home-demonstration agents. There will be an agent for poultry clubs to work throughout the State with the women agents and members of the girls' canning clubs and home-demonstration clubs. The girls in the work are putting up better products and are using better containers. The exhibits showed marked improvement over those of previous years. Girls' canning clubs were organized in 28 counties, with a total enrollment of 1,736; 742 reported. The total number of containers filled by the girls and women was 178,954.

It may be of interest to give in detail one girl's record of results: Total number of pounds of tomatoes produced, 3,895; value of other vegetables produced, \$50; put up seven hundred and thirty-five 2-pound cans of tomatoes and 132 jars and bottles of preserves and fruits; cost of production, \$8.94; cost of cans, \$39.22; receipts for fresh vegetables, \$11.90; estimated value of canned vegetables, \$59.29; estimated value of vegetables used at home, \$34.76; total value of all products, \$126.41; all expenses, \$48.17, a net profit of \$78.24. This girl won a \$50 prize given by the State Federation of Women's Clubs for a first-year club girl.

This was the first year's work in organizing home-demonstration clubs for women. Four communities were selected in each county where the agents organized the women and home-demonstration clubs to receive instruction in poultry raising, making of home conveniences, and the study of nutrition and home improvements. Meetings were held regularly throughout the year. State and Government bulletins were furnished to the members of these clubs by the agents. There were 104 home-demonstration clubs organized during the year. The following additional summary is given to show the activities of these home-demonstration agents: Miles traveled, 95,458; 16,078 visits were made to club members, schools, and homes; 19,651 letters written; 20,325 bulletins distributed, 2,104 meetings held, with an attendance of 49,484; 111 fireless cookers

made; 275 iceless refrigerators; 79 houses screened; 32 flytraps made; 274 canners purchased; 16 waterworks systems installed; 1,653 demonstrations in food canning and preserving were given by the agents at meetings.

The county extension schools have given good results. These were planned and held by the county agents in cooperation with the school boards, women's clubs, chambers of commerce, boards of trade, and other interested people. The speakers for these meetings were the county agents, district agents, the poultry-club agent, the district nurse for the State board of health, and members of the school faculties; and frequently doctors are called on to give lectures on health. The Florida State College for Women held its fifth short course for prize-winning canning-club girls. Thirty-nine girls from 27 counties attended. The expenses of travel and board while attending this course were met by the banks, women's clubs, county boards of education, county commissioners, and fair associations. The girls attending these schools were from 15 to 18 years of age. The course consisted of laboratory work, cooking and sewing in the forenoons, and manual training, poultry raising, and other practical lines in the afternoons.

Three bulletins were published and distributed by the department of home economics, Florida State College for Women—one on the Iceless Refrigerator; Home-Demonstration Work in Florida for the Year ending December 1, 1915; and another on Jellies, Preserves, and Marmalades.

There was expended on this project for this fiscal year the sum of \$29,955.21.

Farm and home making clubs.—This work was for negroes and was carried on in seven counties. It seemed more advisable to get the work established in a few counties before attempting to cover a large territory.

The work was conducted under two divisions—the farm and home makers' clubs and demonstration work for colored farmers. Only two agents have been employed so far. Both make their headquarters at the negro agricultural and mechanical college at Tallahassee.

The agent in charge of home-makers' clubs devotes his entire time to extension work. The local agent devotes four days to demonstration work in Leon County and two days to teaching in the agricultural and mechanical college. Approximately 150 demonstrators were enlisted the first year. Their demonstrations represented corn, cotton, tobacco, sweet potatoes, oats, peanuts, velvet beans, cowpeas, and a few plats of alfalfa. Greatly increased yields were noted on these demonstrations. The agent devoted some time to the live-stock interest among the negro farmers, and the indications are that considerable results may be expected from this in the future. This

work will be increased as opportunity and funds permit. The agent traveled approximately 4,400 miles; conducted 12 field meetings, with a total attendance of 2,000; and assisted in demonstrations and contests arranged by the agent in home-makers' clubs. In his county he enrolled 22 boys in corn clubs, 18 in tomato clubs, 20 in poultry clubs, and 14 in pig clubs.

The plan of work for the negro boys' clubs is to have each member select and cultivate 1 acre of ground—half of it to corn, one-fourth to peanuts, and one-fourth to sweet potatoes. Systematic records are to be kept, and the agent collects and tabulates these reports. This organization for the negro boys is known as the Farm-makers' Club.

The plan for the girls is to have one-tenth acre in vegetables, usually tomatoes. They are also to be given instruction in canning, preserving, and housekeeping. Their reports are to be collected in the same way. This organization for the negro girls is known as the Home-makers' Club. Four hundred boys and girls were enrolled in the clubs this year and 196 reports were collected. Meetings and demonstrations were held for the purpose of teaching the negroes the general methods and purpose of the work. As the work grows the boys will be instructed in raising pigs and the girls in raising poultry, but until they become familiar with the work outlined above they will not take up new lines.

Silo construction.—The demonstration work in silo construction and the preparation of silage is conducted cooperatively with the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture. It is carried on in close cooperation, also, with the county agents, the county agents securing the information necessary for the silo specialist to pursue his work in the field. In locations where dairying is carried on to a considerable degree, silos become a necessity in Florida, as in any other State. A total of 49 silos were constructed at which the specialist in some way gave instructions.

OTHER PROJECTS.

Hog cholera.—The work under this project was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The bureau sent a veterinary inspector to the State for educational work in connection with the hog-cholera control. This inspector has visited every county in which agents are located and has numerous demonstrations in serum vaccination, laying special stress on teaching the county agents how to diagnose cholera and also how to apply the serum treatment. In sections where the work has been carried out systematically it has given great impetus to hog raising.

OUTLOOK.

The demand for extension work in the State of Florida is growing much more rapidly than the annual funds. The amount of money put at the disposal of the county workers in the various counties has increased largely from year to year. More counties are desiring to take up the work in home demonstration and county cooperative demonstration work than the funds from the State and National Treasury will permit. The value of the work is no longer in doubt, both State and county treasury coming freely to the assistance of the extension fund in carrying on this cooperative work. Sixty per cent of the State is covered by agents, and it is probable that within the next five years the remaining 40 per cent will be in active co-operation with these great projects.

GEORGIA.

Division of Agricultural Extension, State College of Agriculture, *Athens*.

J. PHIL CAMPBELL, *Director*.

Organization and administration.—The organization was the same as last year, with the following changes in personnel: J. Phil Campbell was promoted from State agent to director of extension July 1, 1915. Prior to this A. M. Soule, president of the college, had been acting director. The general plans and procedure of work were the same. The organization consists of a director, 15 field specialists, 10 State and district agents, 74 county agents, 2 supervisors in home economics, 46 women county agents in home economics, and 8 clerks. This is an increase during the year of 8 county agents, 1 woman agent, and 2 specialists. There were no part-time extension employees except the auditor, treasurer, and chief clerk. The two leading projects were the county-agent work and the home economics work for farm women and girls. There was cordial and friendly cooperation between the extension division and the State department of agriculture. Very cordial relations and cooperation were also maintained with the State department of public instruction, especially in the handling of boys' and girls' club work.

Publications.—There were published during the fiscal year ending June 30, 1916, 9 bulletins, 12 circulars, and 6 large poster circulars. There was a total of 266 pages and a total of 253,000 published. Also 105 issues of plate material have been sent out to 150 papers, each issue of this plate material consisting of 6 columns of matter. A total of 65,303 circulars and bulletins was sent out. Bulletins were distributed directly from the extension office to a large mailing list kept for that purpose. Mailing lists were secured from county

agents, from visitors to extension schools, farmers' institutes, and county fairs who requested that their names be placed on a permanent mailing list.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$35,173.47
Smith-Lever, State	25,173.47
United States Department of Agriculture, farmers' cooperative demonstration work	50,000.00
United States Department of Agriculture, other bureaus	6,930.00
County and other appropriations	52,400.00
Total	169,676.94

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics and girls' club work, boys' club work, extension schools or meetings for farmers, educational exhibits at State fairs, live-stock extension work, boys' pig clubs, boys' and girls' poultry clubs, agronomy and farm management, dairy extension work, printing and distribution, horticultural extension work, and agricultural engineering. Funds from the United States Department of Agriculture were used in the support of the following projects: Administration, county agents, home economics, boys' clubs, pig clubs, poultry, dairying, and live stock.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—The county-agent work as a whole made considerable progress. Emphasis was again placed on the soundness of the policy of having each farmer raise as nearly as possible all the food and feed crops necessary for home consumption. In this respect the statistics show very encouraging results. Some idea of the variety and extent of the work of the county agent can be gained from the following partial report of the farm and farmstead improvement work in Georgia: A membership of 10,212 in 474 farmers' clubs was reported; cultural directions and assistance were given in pruning, spraying, etc., in 3,573 orchards, containing 517,085 trees. As a part of the live-stock work 440 dipping vats and 158 silos were built. There were 5,584 farmers induced to take better care of farm manure, and 2,080 of these provided sheds as a protection against washing rains, while 7,330 farmers began the practice of composting all farm manure and other waste products. Demonstrations to the number of 1,416 in the proper use of commercial fertilizers were

conducted and large quantities of such fertilizers were bought co-operatively, with an estimated saving of \$6 per ton to the farmer. On the 1,970 farms demonstrating the use of lime there were 36,616 tons of lime used. Some other things done with the agents' assistance and advice are: Eight hundred and three farm buildings erected; 412 building plans furnished; 851 buildings painted or whitewashed; 365 home water systems and 93 home lighting systems installed; 3,441 home sanitary conditions improved; 1,570 homes screened against flies and mosquitoes; 504 sanitary privies erected; 3,038 systematic rotations established, involving 65,200 acres; 2,016 new pastures established and 630 old ones renovated, with an acreage of 21,920; tile drainage put in on 723 acres, and 15,076 acres drained by ditch; stumps were removed from 98,347 acres; 45,169 acres were terraced; 1,023 road-improving demonstrations were conducted, resulting in 900 miles of improved roads; 3,194 farmers planted cover crops to turn under; and over 9,000 improved pieces of farm machinery and labor-saving equipment were purchased. The county agents in addition visited 101,767 farmers and others interested in the work; held 1,320 field meetings, with an aggregate attendance of 5,961. There were 2,194 farmers induced to keep a cost record of their crops. Fall plowing was adopted as a practice by 8,051 farmers and 8,035 farmers are practicing seed selection, of whom 266 are growing improved seed for sale. The production of sugar cane or sorghum for sirup purposes was practiced by 5,765 demonstration farmers. There are 5,275 farmers enrolled in the work who are now raising practically all of their home supplies. The number of farmers who are proving to themselves by demonstrations conducted on their own farms the advantages of a greater diversification of crops, the acreage involved, and the yields obtained from the demonstrations are partially listed in the tabulation of field-crop data herewith:

Some results of field-crop demonstrations in Georgia, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	3,000	1,765	37,436	² 30.5	3,909	45,929	² 24.5	6,909	83,365
Cotton.....	1,819	1,285	26,976	³ 766.0	2,801	36,219	³ 556.0	4,620	63,195
Tobacco.....	38	28	190	⁴ 852	.....	.....	.....	38	190
Small grains.....	8,435	1,501	24,245	.....	3,217	28,263	.....	11,652	52,508
Hay, forage, and cover crops.....	3,845	1,838	15,664	.....	946	3,843	.....	4,791	19,507
Summer legumes.....	5,379	2,872	105,547	.....	7,024	80,931	.....	12,403	186,478
Total.....	22,516	9,289	210,058	.....	17,897	195,185	.....	40,413	405,243

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.
² Bushels.
³ Pounds of seed cotton.
⁴ Pounds.

As in other States, the production of more and better live stock is a part of the program of better agriculture, and to what extent the agents have been influential in this respect is partially shown in the following live-stock data: Due to the agents' influence there was brought into the State 964 horses and mules; 1,053 pure blood and 1,717 grade dairy cattle; 1,427 pure blood and 2,615 grade beef cattle; 7,766 pure-blood hogs; 77 pure blood and 334 grade sheep and goats. There were 129 dairy cattle demonstrations, with 1,843 head; 54 beef-cattle feeding demonstrations, with 2,648 head; 535 hog-feeding demonstrations, with 7,501 hogs; 179 horse and mule feeding demonstrations, with 548 head; 3 sheep-feeding demonstrations, with 424 head; and 187 poultry demonstrations, with 10,022 birds. Herds of beef cattle were started on 3,270 farms, and herds of sheep and goats were started on 7 farms. Farmers were induced to treat 96,838 head of cattle, 351,565 hogs, and 1,516 horses for various diseases and pests. Of this number the agents personally treated 2,332 cattle for tuberculosis and 115,880 hogs for cholera.

There was expended under this project for this fiscal year the sum of \$99,971.86.

Boys' club work.—The State agent for boys' clubs is assistant to the State agent in demonstration work, and is himself a district agent in demonstration work. He has two assistants who are also district agents. There is also a special agent in pig-club work. The work in the field was done by these agents and the county agents co-operating with the school authorities, business men, etc. Club activities were numerous, but may be reduced to corn, rotation, and pig clubs. The total enrollment in all club activities was 13,715. There were enrolled in corn clubs 7,250 boys, each growing 1 acre. The 1,551 members reporting grew 64,543 bushels of corn, averaging 41.6 bushels per acre, at an average cost of 40 cents per bushel. Nine boys made 100 or more bushels on their acres.

The rotation clubs were of two classes—those growing three crops on 2 acres and those growing four crops on 3 acres. Corn on one acre and oats followed by cowpeas on the second acre were grown in three-crop clubs. Corn on one acre, cotton on the second acre, and oats followed by cowpeas were grown in the four-crop clubs. The 73 boys reporting in three-crop clubs made an average profit of \$64.74, and 73 boys reporting in four-crop clubs made an average profit of \$91.50. The largest profit in three-crop clubs was \$177 and in four-crop clubs \$195.82.

There was expended during this year under this project the sum of \$2,852.36.

Pig clubs.—The pig-club work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of

Agriculture. Reports are here given on the breeding phase only of the pig-club work. Reports were secured on 275 pigs. The average profit was \$23 per pig. The 132 members using grazing crops yielded an average profit of \$24.93 per pig, while the 143 members not using grazing crops made an average profit of \$21.93 per pig. The average cost per pound of gain was 3.64 cents.

Home demonstration and girls' club work.—Forty-six counties were organized in home demonstration and girls' club work. Most of the local funds for this work were secured from county boards of education. In two or three instances the missionary societies of different churches in Atlanta and Macon assisted the work financially. Other associations and numerous individuals also assisted by giving financial support and offering scholarships as premiums for club work. Valuable assistance was given by banks and other business associations in the marketing of various products put up by the club girls.

During the year two meetings for women county agents were held. The first one in January at the State college of agriculture was for the purpose of giving instruction in problems of organization and administration. In May two district meetings were held at State normal schools where agents were given laboratory practice in canning and preserving aided by representatives from the States Relations Service and Bureau of Chemistry as well as by the home-economics departments of these institutions.

Eight hundred and forty-five club girls have good winter gardens and are raising many vegetables for family use. Very successful club work is being done with poultry; 137 women also reported successful work with poultry demonstrations. The club girls were encouraged to wear a uniform cap and apron or dress. More than 1,500 caps and aprons and almost 800 uniform dresses were made by the club girls. During the year 1,733 meetings of girls' clubs were held, with a total attendance of 30,705. The clubs in Georgia, as far as practicable, were combined into agricultural societies.

Work with women is carried on along the same lines as with girls. There was an enrollment during the year of 1,154 women who made demonstrations under the county agents. These women were organized into 108 clubs which held regular meetings. The following devices were installed in homes: Five hundred and thirteen fireless cookers, 202 iceless refrigerators, 386 flytraps, 173 houses screened, 119 ironing boards, 76 wheel trays, 6 shower baths, 23 kitchen cabinets, 12 butter workers, 99 butter paddles, 24 barrel churns, 15 shotgun cans, 45 butter molds, 13 dairy thermometers, 486 other labor-saving devices, 29 waterworks systems, 13 rest rooms, and 1,700 other labor-saving devices not listed above were made and installed in rural homes. As a result of this work hundreds of women through-

out the State are asking for specific help along all lines pertaining to their home problems.

There was expended during the year in the home demonstration and girls' club work project the sum of \$28,874.54.

Poultry clubs.—The poultry-club work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The specialist in charge carried on the work through the county and home-demonstration agents. The following results were obtained: Fourteen counties were organized; there were 45 clubs, with a membership of 592, of which 171 made reports; there were 6,101 eggs set and 4,491 chicks hatched; 25 fowls were sold for breeding purposes, for which \$42.40 was received; 524 pounds of poultry was sold for market, for which \$182.96 was received; and 257.5 dozens of eggs were sold for \$109.12. The value of stock on hand, total receipts, and prizes won amounted to \$1,367.42. The total cost of feed, labor, equipment, etc., was \$626; 1,400 fowls and 38 dozens of eggs were exhibited at fairs by 312 members; and \$730.25 in prizes was won by these exhibits.

Horticulture.—One State leader and two field specialists were employed to supervise extension work in horticulture. These specialists work in cooperation with the county agents in giving demonstrations of the best methods of handling farm orchards, combating orchard insects and diseases, furnishing plans for home orchards and in giving instructions in home-garden work. Definite demonstrations in 12 counties cooperating were visited every month or six weeks and practical assistance given in spraying and the care of orchards, planting new orchards, fall gardens, etc.; 26 other counties were visited in the interest of the work; 14 counties were visited in behalf of the club work. There were 21 demonstration gardens, 9 potato demonstrations, and 75 acres of potatoes treated for disease; 18 orchard demonstrations, 25 orchards sprayed, 50 pruned, 25 wormed, and 12 new orchards planted. A special campaign was carried on in Richmond County to show farmers how to prune and worm trees and to awaken an interest in home orchards. Instruction was given in cultivating and fertilizing orchards; advice was given on improving and beautifying 14 homes; 69 visits were made to county agents; and 22 meetings were addressed, with an attendance of 1,346.

Agronomy.—Under this project a leader and three field specialists were employed to supervise work in agronomy and farm management. In 1915 the principal work consisted of fertilizer test plats and keeping records of farming operations on special farms to determine the best methods of farm management. This project was discontinued January 1, 1916, but revived July 1, 1916, with one specialist instead of three. The general plan has been to visit each county agent to see the agronomy work being done by the agent and

to determine as far as possible the agronomy problems of the various sections.

Dairy-extension work.—This work was carried on in cooperation with the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture. A leader and two field specialists were employed under this project. The principal work consisted in the introduction of pure-bred animals, assisting in marketing dairy products, encouraging the building of silos, planning dairy barns, and giving instruction in the sanitary handling of milk. One thousand and fifty-two pure-bred dairy cattle were brought into the State; 3 cooperative creameries were established; 9 cream routes organized, which were supported by 300 patrons; 12 dairy barns built and 10 others remodeled by the specialists. They established 9 calf-raising demonstrations and placed registered dairy bulls on 9 farms. Milk records were kept on 115 cows, 22 of which were sold to the butchers when the records showed that they were not profitable milkers. One hundred and ten demonstrations were given in churning and butter making.

Live stock.—One State leader and three field specialists were employed to carry on live-stock extension work. During 1916 substantial progress was made in the development and improvement of live-stock in Georgia. The most tangible evidence of this is the greatly increased production of feedstuffs. The increase in acreage of corn grown for silage in 1916 over that in 1915 was 405 per cent, the increase in acreage of oats 140 per cent, of cowpeas 685 per cent, and of velvet beans 2,650 per cent. Special efforts were made to encourage the introduction of pure-bred horses, hogs, and cattle for breeding purposes. Nine hundred and sixty-three head of breeding stock were brought in with a view to raising heavier farm horses and mules; 1,427 registered beef animals were brought into the State, and 4,595 cattle were fed under improved methods. A series of lectures were given on beef breeds of cattle, their feed, care, and general management. Very material assistance was given the agents to encourage swine production, especially through the pig-club work. In addition to the general work a live-stock campaign was made in the spring of 1916. Eighty-nine exhibitions of live stock and feed crops were made and lectures delivered before 41,335 people.

Agricultural engineering.—One leader and one field specialist were employed to supervise the work of rural engineering. The work consists mainly in furnishing plans and blue prints for barns, hay sheds, farm homes, storage houses for sweet potatoes, apples, and other products, hog houses, cold-storage plants, irrigation plants, grain elevators, farm meat-curing houses, and the installation of home waterworks. Eighteen new designs of buildings have been drawn

and copies sent out. In all 1,088 blue prints covering 304 designs have been sent out on requests from agents and others. These have gone to 96 counties. Aid has been given in the erection of 26 buildings, in the improvement of 50 others, in building 9 dipping vats, in the installation of 4 waterworks systems and 4 home lighting systems, in the construction of 51 silos, and the improvement of sanitary conditions in a large number of homes. Fifty-five counties were visited, institute work was done in 18 counties, 6 agents' meetings were attended, 9 meetings, with an attendance of 1,042, were addressed, and 3 circulars prepared for publication.

Extension schools.—Week-long schools of instruction by the specialists from the State college of agriculture were carried on. The syllabi was prepared by the heads of the departments of the college and these were used by the specialists who lectured at the schools. Three or four principal subjects were sometimes taught at an extension school. The course of lectures was flexible, varying with the needs of the community. These schools were conducted in communities that secured a required minimum registration, provided suitable quarters, and showed a cooperative spirit. A registration fee of \$1 was charged to each student to cover part of the expenses and as a token of willingness to attend the school. The local county agent aided in promoting the school. After a few months this project was discontinued and the funds transferred to project No. 7, "Field meetings of farmers."

Field meetings of farmers.—One specialist was employed to supervise the work in field meetings of farmers. This work consisted of meetings of club members and farmers held on demonstration farms for one day in counties having agents. The county agent calls together demonstrators, club members, and others at some central place for an all-day meeting, the purpose of which is to show one or more special demonstrations, giving the reasons for the success or failure of the demonstration and instruction for further procedure. Sixty-one field meetings were held in as many counties attended by 12,617 persons. Three speakers were sent to each of these meetings. These meetings covered a territory of 11,673 miles.

Educational exhibits.—There was one specialist in charge of work under this project, which consists mainly in making educational exhibits of farm and garden products by demonstrators and club members at State and county fairs. The exhibits in 1916 were viewed by 50,000 people at the State fair at Macon and 150,000 at the southwestern fair at Atlanta. In connection with the exhibits, demonstrations in butter making, canning, etc., were carried on for the benefit of visiting farmers and their families. Boys' and girls' club schools were also held in connection with the exhibits, at which several hundred club members were present.

OTHER PROJECTS.

A new form of extension teaching was inaugurated for the first time this winter through the use of motion pictures illustrating primarily the work of the State college and the extension division. Through this means effective service was done in reaching and in placing vital information before thousands of people who had never come in contact with the work of the college. The pictures were generally shown at schoolhouses in the open country. By this arrangement districts off the railroads were reached in an effective manner. Addresses were delivered as the pictures were run through the machine, and the audience was given an opportunity to ask questions and secure any information desired. The main difficulty experienced in this campaign was the limited size of the halls available in which to display the pictures. This outfit was on the road about three months; 64 exhibits were made during the time, two exhibits often being made in one day; 2,488 miles were covered and 10,000 people attended.

OUTLOOK.

The extension work in Georgia is growing rapidly. The demand for the county-agent work is increasing and it will soon be necessary to provide an agent for each county in the State. The girls' club work, the dairy, poultry, and home garden work for women are receiving a hearty welcome in all sections of the State. In the boys' club work the most notable development for 1917 promises to be the calf clubs which are being organized. All the other clubs are progressing satisfactorily. The outlook in Georgia is good for an exceptionally effective year's work along all lines of extension activities.

KENTUCKY.

Extension Division, College of Agriculture, State University, *Lexington*.

FRED MUTCHLER, *Director*.

Organization and administration.—The plan of work remained the same as during the previous year, and there were only a few minor changes in the personnel. The director of extension has general supervision of all extension work and reports to the dean of the college of agriculture of the State university. The organization, as it now exists, consists of a director, State agent, 2 district agents in men's work, assistant State agent in charge of boys' club work, State agent in home-demonstration work and 2 district agents, 40 men county agents, 24 women county agents, 7 full-time and 6 part-time specialists. This was an increase during the year of 3 county agents,

2 district agents, 1 man, and 1 woman, and a decrease of 1 home-demonstration agent.

Members of the extension force have the cooperation of instructors of the college and the experiment station workers in supplying technical information on special agricultural problems. Finally, relations are maintained with the State department of agriculture and the State department of public instruction.

Each of two State normal schools furnished an office and office equipment for the State agent in charge of county agents and the two district agents. Friendly cooperation and financial support is given by a number of commercial clubs, farmers' clubs, business men's leagues, and other business organizations in the State. The central offices of the extension division are fairly well equipped for handling the correspondence and the distribution of the literature, and also with charts, lantern slides, and other necessary material for the use of the workers in speaking at the agricultural meetings. A library is being established for the use of the extension-division workers.

Publications.—Ten circulars, totaling 58 pages, were published during the year and 38,000 copies were printed. There were also published eight 1-page press bulletins of 600 copies each. In addition to these a four-page biweekly farm bulletin was issued, beginning October 18, 1915, and 5,000 copies were printed at each issue. The subject matter for publications is obtained from the county-agent reports, conferences, individual experiments, and from results obtained from the experiment stations and the United States Department of Agriculture. The literature is distributed by sending a copy of each to all the county agents and other workers and furnishing them as many more copies as desired upon request. A mailing list has been prepared for the biweekly news, the names on this list having been obtained from the county agents and others.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$31, 088. 00
Smith-Lever, State.....	21, 088. 00
United States Department of Agriculture, farmers' cooperative demonstration work.....	41, 000. 00
United States Department of Agriculture, Bureau of of Animal Industry.....	3, 300. 00
State appropriations.....	1, 080. 00
County appropriations	12, 727. 00
Other sources within the State.....	7, 605. 00
Total	117, 888. 00

Smith-Lever funds were used in support of the following projects: Administration, county agents, boys' clubs, pig clubs, home economics,

home-economics specialists, printing, movable schools, poultry clubs, poultry specialist, horticulture, live stock, dairying, agronomy, and rural organization. Funds from the United States Department of Agriculture were used in the support of the following projects: Administration, county agents, home economics, boys' clubs, poultry clubs, and pig clubs.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—The work under the county agents' project has been pushed forward on the same plan as in previous years. During the fiscal year there were 41 agents, working in the same number of counties. The agent body, as a whole, is well qualified and thoroughly interested in the work, and the scope of the work has been extended.

The greatest agricultural problem for the Kentucky farmer seems to be that of soil fertility, and a campaign for a better system of soil improvement has been pushed by the extension forces. The results indicate that the principal things that must be done to bring this about are to increase the use of leguminous crops and limestone, the improvement of live stock, and the providing of the silos and pastures necessary to keep the proper amount of live stock on the farm.

Another principal line of work of the county agents during the year was the organization of communities into agricultural clubs for the purpose of cooperative buying and selling and for the general upbuilding of the agricultural interests of the community. More than 300 community agricultural clubs are now organized in the State, and several counties have county agricultural boards of control for the purpose of assisting and guiding the county agents' work. The total membership in these clubs is 8,625.

The county agents spend 80 per cent of their time in the field and 20 per cent in office and miscellaneous work. The following is a partial summary of their activities: Number of official visits to demonstrators, club members, and other farmers and business men, 34,707; number of miles traveled, 203,299; calls in the office, relating to the work, 42,226; number of farmers' meetings held, 2,531; total attendance, 157,649; number of field meetings held, 501, with an attendance of 10,230; number of official letters written, 23,407; number of articles prepared for publication, 846; number of United States Department of Agriculture bulletins distributed, 35,285; number of State bulletins distributed, 23,357; 1,123 schools visited regarding the work and 197 courses for teachers outlined. There were 31

county fairs held. The agents also assisted in putting out 332 home-demonstration orchards, containing 43,703 trees, and gave some assistance in the spraying, pruning, etc., of 3,670 orchards, containing 185,467 trees; advised 15,615 farmers in the use of fertilizer; conducted 1,491 fertilizer demonstrations; assisted 148 communities in cooperative buying, the amount bought cooperatively by the farmers being \$91,883 worth, the amount saved by buying cooperatively \$22,098; assisted in the building of 234 silos; caused 1,338 farmers to use lime, a total of 33,129 tons; assisted in the building of 264 houses and the improvement of 416; furnished building plans for 179; established 45 home water systems; 17 lighting systems; screened 1,381 houses; installed 723 flytraps; 15 telephone systems; caused to be started 640 new pastures; 103 drainage systems; 207 farmers drained parts of their farms; 122 farmers removed stumps; 645 home gardens started. The following table gives the results of work carried on by the agents with field crops:

Some results of field-crop demonstrations in Kentucky, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	831	511	12,443	² 47.7	1,326	18,309	² 39.5	2,157	30,752
Tobacco.....	477	234	2,692	³ 1,257.0	.....	.....	.....	477	2,692
Oats.....	159	100	2,430	² 32.5	203	1,770	² 23.7	362	4,200
Wheat.....	497	239	13,383	² 16.7	509	3,463	² 13.7	1,006	16,846
Rye.....	252	200	4,423	² 14.5	124	803	² 12.0	376	5,226
Barley.....	82	43	661	² 22.0	19	506	² 18.2	101	1,167
Alfalfa.....	1,462	335	2,820	⁴ 3.5	161	389	.....	1,623	3,209
Crimson clover.....	499	256	7,424	.....	315	2,856	.....	814	10,280
Red clover.....	491	325	4,841	.....	282	3,243	.....	773	8,084
Sweet clover.....	689	472	4,496	.....	223	660	.....	912	5,156
Cowpeas.....	410	188	5,795	.....	380	2,266	.....	790	8,061
Soy beans.....	592	340	3,125	.....	124	802	.....	716	3,927
Potatoes.....	92	83	210	² 155.0	.....	.....	.....	92	210
Total.....	6,533	3,326	64,743	.....	3,666	35,067	.....	10,199	99,810

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds.

⁴ Tons of hay.

Good results were accomplished in the improvement of live stock. There were brought into the State, due to the agents' activities, 905 dairy cattle, 356 of them being pure blood; 522 pure-blood beef cattle and 529 grades; 1,012 pure-blood hogs; 66 horses and mules; and 309 pure-blood sheep and goats and 4,205 grades. There were 325 poultry demonstrations, with 29,436 fowls; 10 horse and mule feeding demonstrations; 51 feeding demonstrations, with 2,028 head of cattle; 473 hog-feeding demonstrations, with 6,602 hogs; and 1 sheep-feeding demonstration. Beef-cattle herds were started on

140 farms, hog raising was started on 438 farms, and herds of sheep and goats were started on 160 farms. The agents were also active in giving assistance and instruction in the treatment of live-stock diseases. Farmers were induced to treat for various diseases and pests 19,935 cattle, 74,418 hogs, 1,177 sheep, and 392 horses.

There was expended under this project for this fiscal year the sum of \$67,458.

Boys' club work.—The club work was supervised by the State club agent and a special agent in animal husbandry. The field work is carried on by these agents, through the county agents, who cooperate with the school authorities in the various counties.

There were 1,447 boys enrolled in the corn clubs, each growing 1 acre; 285 reported, with an average of 64 bushels per acre, costing 31½ cents per bushel; 11 boys made more than 100 bushels per acre.

Pig clubs.—This work is carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The specialist in charge assists the county agents in organizing clubs, holding meetings, securing registered pigs, visiting club members and instructing them along proper lines of swine husbandry. Pig clubs are organized only in counties having county agents. County agents follow up the work by visiting the members, weighing their pigs, checking up their records, giving instruction, holding meetings, etc. There were 956 members enrolled in the pig clubs; 546 made complete reports, showing an average profit of \$12.12 per pig. The average cost of gain per pound was 5 cents, and 70 per cent of the members had registered pigs. Bankers, business men, and farmers take an active interest in the work. It has been a means of bringing the county agent favorably before the farmers and the business men in many counties. As a result of this work, several hundred farmers have changed their feeding methods and secured pure-bred hogs, and in six or seven counties community breeding has resulted. The bankers and business men have put \$5,000 worth of pure-bred hogs in the hands of the boys.

There was expended under this project for this fiscal year the sum of \$2,803.52.

Home demonstration and girls' club work.—There were employed under this project a State agent, 2 district agents, and 26 county agents. The number of girls enrolled in the canning clubs was 1,409, of whom 814 reported; 725 girls were enrolled in the poultry clubs, of whom 303 reported; 256 girls made demonstrations in cooking-club products and 114 in bread making. A total of 227,130 containers of vegetables, fruits, etc., were packed by the club members, with a total value of \$45,360.80. The season was unfavorable for both garden and orchard production, but thrift was used in conserving all products grown. The large number of containers of catsup and

pickles indicate that products which would otherwise have been wasted were utilized. The club members made 1,366 caps and aprons, 174 uniform dresses, 390 towels, and 292 holders for use in demonstrations.

In the home-demonstration branch of the work 60 clubs were organized, with a membership of 1,100 women. Special demonstrations were given by supervising agents and specialists, including cooking, 96; sewing, 20; home conveniences, 26; and home nursing, 41. Demonstrations by club members in their homes include bread making, 255; butter making, 23; sewing, 75; houses screened, 193; flytraps, 226; water systems installed, 14; fireless cookers, 22; iceless refrigerators, 14; and 326 home conveniences were purchased.

A health specialist was employed for three months, to attend monthly meetings of home-demonstration clubs and give demonstrations in home nursing and care of emergency sickness. Fifty-seven women were enrolled in poultry clubs. One egg circle and two breeding associations were organized. The total value of poultry products was \$1,715. Canned products to the value of \$9,086.48 were produced by women under the instruction of county agents.

There was expended under this project for this fiscal year the sum of \$23,029.33.

Boys' and girls' poultry clubs.—This work is carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The poultry-club project is closely related to the canning-club work. The object is to educate the boys and girls of the farm in better poultry products. The age limit of membership is from 10 to 18 years. Thirteen counties were organized, with a total enrollment of 656 boys and girls; about equally divided, 274 reporting; 8,926 chickens were hatched; 12 exhibits were held and 696 chickens exhibited by 150 members; \$407.25 in prizes were offered.

Home-economics specialists.—The specialist in charge of home economics gave oral advice and instruction to 5,542 rural women; participated in 53 farm schools and mass meetings; directed, with the aid of other home-economics specialists, two movable schools in farm economics for women; held 48 conferences concerning rural study clubs; helped establish and assisted in directing the activity of a monthly club market, by which city women created a market for county women's poultry, dairy, and canned products; cooperated in giving advice to girls regarding home making, cooking, etc.; cooperated with the secretary of the Young Men's Christian Association in solving house and feeding problems; started home demonstrations in bread making, cookery, labor-saving devices, etc.; cooperated with men county agents in counties not having women county agents in delivering addresses at meetings, judging exhibits,

etc. About 250 homes were visited and 125 women have adopted some one of these forms of demonstration.

Poultry.—One specialist was employed under this project. The work consists in carrying on demonstrations in counties where there were agents, conducting farm schools with county agents, and assisting the State college of agriculture in the dissemination of information relating to diseases of poultry. The demonstrations were carried on through the county agents. The specialist gave additional help and advice as needed. Eight hundred homes have adopted suggestions of the poultry specialist or conducted definite demonstrations. Good results were accomplished where there was personal contact with the demonstrator on the farm. The breeds of poultry have been standardized in several counties. Demonstrations are carried on in feeding laying hens and baby chicks. There were 65 incubator demonstrations and 95 poultry houses built from plans furnished by the specialist.

Agronomy.—The specialist under this project delivered 37 addresses on the maintenance of soil fertility at farmers' meetings. A large amount of very important work was done in the distribution of pure strains of winter oats, barley, and wheat. Enough winter-oats seed for 1 acre each was sent through the county agents to 24 farmers. These oats have been bred specially for resistance to winter-killing. Winter-barley seed was sent out in the same manner. A wheat-growers' club was organized in Warren County for the purpose of producing pure-seed wheat.

Live stock.—The specialist in charge of this work carried on a general propaganda for live-stock improvement and increased production by means of lectures, personal work with individual farmers and committees in organizing community breeders' associations, placing pure-bred animals in communities where most needed, in the conduct of a live-stock exchange, and by correspondence, bulletins, etc. This work is closely affiliated with the pig-club work and the dairy-extension work and is carried on largely through the county agents in counties that have them. About 10,000 people were reached through lectures and personal work. Special work was done on a hundred farms. Fifty head of pure-bred cattle have recently been placed in communities where they were badly needed. Progress was made in standardizing breeds of cattle and swine in several sections. Many clubs and individuals are learning the value of a correct balanced ration.

Dairying.—The specialist in charge of dairy work reports help extended to farmers in all matters relating to the management of the herd, the dairy, and the dairy farm. Plans were furnished farmers for building 50 silos and numerous dairy-barn plans were prepared. Five new dairy barns were built and 10 old ones re-

modeled under the dairy specialist's supervision. This work was carried on for the most part in cooperation with the county agents. The follow-up work was done largely by the county agents and the dairy specialist by personal visits and correspondence. Efforts were made to put the dairy farmers in touch with the means of solving their various problems as they come up. Approximately 1,000 persons were reached and specially interested. Results of the work are evident in the greater economy of production, greater profits, better breeding and feeding, and other improvements in dairy farming. Two dairymen's associations and one cow-testing association were formed.

Movable schools.—Two specialists were employed under this project, one in agriculture and one in home economics. During the year 20 movable schools in agriculture and home economics of from one to four days' duration were held in various parts of the State, mainly in counties having agents. The problems studied were closely related to the development of the community in which they were held. These schools were largely attended, in some instances as many as 1,500 people being present, and much interest was created.

OUTLOOK.

Although there was no change in the general plan of work there was distinct progress and development along all of the lines already started. By means of community organizations, which have been particularly stressed in Kentucky, the agents are able to reach a much larger number of people than heretofore. The subject of soil improvement has received special attention from the beginning. The progress that is being made along this particular line is very gratifying. The cooperation from all sources is good, and there is no question but that the extension work is more thoroughly appreciated as it becomes better known.

LOUISIANA.

Extension Division, College of Agriculture, Louisiana State University,
Baton Rouge.

W. R. DODSON, *Director.*

Organization and administration.—There were no changes in the general plans of work during the fiscal year; neither were there any important changes in the supervisory forces. The director of extension is also the director of the experiment station and dean of agriculture of the college. The organization consisted of the director, assistant director, State agent, assistant in charge of junior extension work, assistant in charge of work for woman and girls, 3

district agents, 39 county agents, 18 women county agents, and 15 specialists, one of whom devotes but half of his time to extension work. There were also 5 negro men agents and 2 negro women agents.

The extension work in the State has made progress along all lines during the year. There seems to be complete harmony and cordial cooperation between all parties interested in the work. The extension division now has the hearty cooperation and support of the State department of agriculture, and the county boards of education have continued their financial support in the employment of a number of agents, both men and women. The relations with the experiment station and agricultural college are very friendly and cordial, but no member of the college or experiment-station staff belongs to the extension staff except the director, assistant director, and horticulturist. The farmers' institute work is under the supervision of the director of extension and is largely confined at present to extension schools. The parish agent works up the interest at the meetings and gives all the assistance necessary to make the meetings a success in his territory. Members of the extension force and some of the college extension forces are used as speakers or instructors in these schools. Cooperation has been established with the president of the Southern University, the college for negroes in Louisiana, by which he is made a district agent in the negro work. Most of his salary is paid from funds of the negro college. Three negro men agents have been added to this work during the year.

Office room for the extension force is provided on the university campus, and there is sufficient equipment and clerical assistance for present needs. There is no regular extension library, but the director's private library and the university library are available for the use of the force.

Publications.—The extension division has published 15 circulars, comprising 231 pages, with a total issue of 150,000 copies. There is also an extension paper which is issued weekly by the junior extension office and paid for from college funds, except the editor's salary, which is paid from the extension funds. The manuscripts for these publications were principally prepared by the extension staff. Some, however, were written by members of the experiment station staff. These publications are sent out to all citizens who request them, to lists sent in by the county agents, to all school officials, police, jurymen, newspapers, and the agricultural press. Circulars and bulletins are also furnished in bulk to the agents in parishes for personal distribution.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916.

Smith-Lever, Federal	\$24, 102. 11
Smith-Lever, State.....	14, 102. 11
United States Department of Agriculture, farmers' co-operative demonstration work.....	42, 000. 00
United States Department of Agriculture, Bureau of Animal Industry.....	16, 875. 00
United States Department of Agriculture, Office of Markets.....	1, 125. 00
County appropriations.....	23, 358. 33
Other sources within the State.....	2, 469. 04
Total.....	124, 031. 59

Smith-Lever funds were used in support of the following projects: Administration, county agents, boys' clubs, home economics, truck production, poultry, marketing, corn improvement, travel of experts, negro work, printing, and live stock. Funds from the United States Department of Agriculture were used in the support of the following projects: Administration, county agents, home economics, boys' clubs, corn improvement, negro work, live stock, dairying, marketing, and pig clubs.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—The county-agent work is carried on under the direct supervision of the State agent, 3 district agents, and 39 county agents.

In addition to the definite demonstrations with the staple crops, the activities of the county agents are many and varied. A great deal of the most productive work of the agent is of a general character. The general campaign for the diversification of crops and for the encouragement of the live-stock industry has probably been the most striking feature of the work during the year. The success of the efforts along these lines has been beyond expectations. The persistent campaign for soil improvement carried on throughout the State in the past few years has begun to bear fruit in the way of increased yields on almost every farm that has been touched by the efforts of the extension workers. Good organization work has been developed in a number of parishes and this has made it possible for the agent to reach a much larger number of people.

During the year there were serious outbreaks of hog cholera, and the agents took an active part in the suppression of the disease. They were quite active in assisting in the campaign for tick eradication, and their efforts with the other forces at work along this line no doubt influenced the legislature to pass a State-wide tick-eradication law which will be of greatest value to the stock-raising industry.

The following is a brief summary of the results of the agents' work during the year: Three hundred and sixty-three home-demonstration orchards were started, with a total number of 83,433 trees; assistance given in spraying, pruning, or in some way caring for 1,042 orchards, with 67,468 trees. Through the influence of the agents and other live-stock workers, 238 pure-bred horses for breeding purposes, 163 dairy cattle, and 584 beef cattle were brought into the State. One hundred and ninety-three dipping vats were built; 371 vats were filled with a solution; 237,300 cattle were dipped; 1,179 pure-bred hogs were brought into the State; 184 pure-bred sheep; 27 new flocks of sheep were started. Seventy-one thousand eight hundred and forty-nine head of cattle were treated for charbon, blackleg, ticks, and other diseases; 34,997 hogs were inoculated for cholera; 15,792 head of horses were treated for charbon; 2,045 farmers were advised as to the use of commercial fertilizer; 97 silos were built; 127 farmers were influenced to use lime on their lands; 2,443 improved farm implements were purchased; 297 demonstrations in terracing were given; 242 new pastures started; 234 farmers removed stumps; agents made 64,400 visits and traveled 278,462 miles; had 14,999 calls in their offices; 919 meetings were held under the extension division with an attendance of 51,937; 548 field meetings were held with an attendance of 5,794; 12,299 official letters were written; 720 articles prepared; 41,200 bulletins distributed; 2,074 schools visited relative to the work; assisted in short courses in 70 schools; assisted in conducting 32 fairs. The results from the demonstrations in various crops will be found in the following table:

Some results of field-crop demonstrations in Louisiana, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	1,405	1,005	32,716	² 32.4	1,549	27,344	² 21.5	2,954	60,060
Cotton.....	652	491	12,844	³ 872.0	701	15,689	³ 582.0	1,353	28,533
Small grains.....	389	223	11,691	.....	231	3,136	.....	620	14,827
Hay, forage, and cover crops.....	269	177	4,680	.....	111	2,256	.....	380	6,936
Summer legumes.....	644	470	24,352	.....	658	20,403	.....	1,302	44,755
Potatoes.....	299	172	1,376	.....	.....	.....	.....	299	1,376
Total.....	3,658	2,538	87,659	.....	3,250	68,828	.....	6,908	156,487

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds of seed cotton.

There was expended under this project for this fiscal year the sum of \$67,312.65.

Negro work.—Under this project the president of the Southern University, the negro agricultural school of the State, acts as district

agent and reports to the State agent in charge of county agents' work. Under him are four local agents, one of which has been working for three years and the other three only served during the present year. In the territory where the local agent has been working among the negro farmers for the past three years there is a decided improvement in the conditions, and the work is quite popular among his people. The negro farmers in his territory contribute personally to his salary each year. In the other three parishes the work has been in operation only during this year, but the reports show that there has been decided progress and the work is well organized for more complete and definite results for next season. It is contemplated to extend this work as rapidly as funds and necessity for it will warrant.

Boys' club work.—Boys' corn clubs were organized in 50 parishes. This work is under the direction of the superintendent of junior extension work, but is carried on largely through the specialist in club work, the county agents, and agricultural high-school teachers. There were 1,900 members enrolled in the corn clubs during the year. Five hundred and six boys reported, with an average of 46 bushels per acre and an average cost of 46 cents per bushel. The members of the corn club made 650 exhibits at the parish fairs, 502 of which were exhibited at the State fair. The members won a number of prizes both at the parish fairs and the State fair. Several scholarships at the Louisiana State University short course were awarded to the club boys for their excellent work. Twenty-two per cent of the members planted winter cover crops on their acres. Thirty-nine per cent of the boys selected seed in the field. The boys in one club alone will have 1,000 bushels of selected seed corn for sale. Cotton clubs were organized in six parishes by picking six boys in each parish to carry on the work. This gave a total of 36 in the State doing cotton-club work. The boys had 2 acres each. The average yield was 1,031 pounds of seed cotton per acre. The boys used only the best seed and were encouraged to take the best care of the seed produced. Some of it was sold for as much as \$2.50 per bushel for planting. 'One boy in Avoylles Parish cleared \$369.83 on his 2 acres on the lint and seed.

There was expended under this project for this fiscal year the sum of \$13,072.37.

Pig clubs.—Pig-club work was organized in 51 parishes; 531 members reported. The reports collected show that the members raised 2,224 pigs, 1,000 were Duroc-Jerseys, 422 were Poland China, 261 Berkshires, 37 Hampshires, 52 Chester Whites, 3 Tamworths, 4 Essex, and 436 grades. The average initial weight was 42 pounds; the average final weight was 205 pounds. The average initial value was \$8.90 and the average final value was \$31.20. The exhibits of pig-club members at the various parish and community fairs were much

better than they were last year. Eight hundred and two pigs were exhibited at local fairs and 240 white boys' pigs and 20 negro boys' pigs were exhibited at the State fair. The railroads cooperated with the State fair association to the extent of hauling 13 cars of the boys' pigs free of charge to and from the State fair at Shreveport. The fair association spent approximately \$1,000 in premiums and in caring for the pigs at the fair.

A large number of the boys were financed by the bankers and business men in the purchase of their pigs.

The pig-club work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture.

Home demonstration and girls' club work.—This work was organized in 19 parishes, and is under the supervision of the State agent and assistant State agent. This is an increase of five parishes over last year. In 14 parishes the agent was appointed for 12 months, and the remainder for a less period of time. One thousand one hundred and thirty girls enrolled in the canning club, 40 per cent reported as having filled 64,864 containers, at an average profit of \$13.75 each; 413 girls made caps and aprons, 52 made uniform dresses, and 95 made booklets; 140 girls had winter-garden demonstrations. No difficulty was found in marketing the girls' products.

Exhibits of the girls' products were shown in each parish, and showed great progress over the previous year, both in the quality of the work and the uniformity of commercial containers. Exhibits were also made at the State fair at Shreveport and the National Farm and Live Stock Show at New Orleans.

A short course for girls was held at the State university, scholarships being given by local people. Forty-seven girls made the best record in the various parishes. Nine parishes held two-day short courses for boys and girls, with about 1,000 in attendance. They were entertained by the residents of the towns in which these short courses were held.

The home-demonstration work was started for women in 12 parishes, beginning with September, 1916, and 450 members were enrolled in the different clubs. They have been most interested in the making and use of labor-saving devices. The county agents reported a total of 48 fireless cookers, 44 iceless refrigerators, and 56 flytraps. Demonstrations were made in vegetable and meat cookery and in bread and butter making. Considerable interest has been aroused in the improvement of sanitary conditions by screening houses, installing waterworks in the homes, and advising women in the purchase of the best types of labor-saving equipment for the kitchen. Rest rooms for country women have been established in two of the leading towns.

Negro girls' club work.—In March, 1916, negro women agents were appointed in Caddo and East Baton Rouge Parishes to organize home-makers' clubs. Two hundred and twenty girls were enrolled, and the work consisted mainly of canning fruits and vegetables, and making sanitary improvements in homes and schools. Many homes and schoolhouses have been whitewashed and put in much better sanitary condition under the supervision of these agents. Exhibits of the work of these clubs were shown at the State fair.

There was expended under this project for this fiscal year the sum of \$16,118.94.

Boys' and girls' poultry-club work.—This work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. A specialist was employed in the fall of 1915 to take charge of this work. His duties were to cooperate with the other extension forces in establishing poultry clubs, and to give general information leading to the improvement in the growing and handling of poultry in the State and to assist in developing plans for marketing the products. The work for the first year was taken up principally with the agricultural high schools, home-demonstration agents, and the two junior extension agents in Webster and West Feliciana Parishes.

During the year 75 poultry clubs in 30 parishes were organized. There was a total enrollment of 750 members; 215 made complete reports. The members are encouraged to raise pure-bred poultry. A great deal of assistance has been given to the poultry-club members by the breeders of the State, who have furnished pure-bred stock at a greatly reduced price. A number of the poultry-club members competed for premiums at the parish and State fairs, and the showing made was creditable to the work.

Corn production and improvement.—The specialist in charge of this work devotes his entire time to the improvement of corn and assisting in the organization of corn clubs, and to getting out information for the use of farmers and club members throughout the State in regard to the best methods of preparing land for corn, cultivation of the crop, and systems of rotation to fit in with the different types of farming. He works in close cooperation with the county agents and other club-work specialists.

Horticulture.—The work under this project is in charge of the horticulturist of the experiment station, who devotes one-half of his time to extension work. He is assisted by two full-time specialists, one who works with truck crops and the other with the pecan-growing industry. The specialists give assistance and instruction to farmers in general throughout the State. The work included 17 cauliflower demonstrations in 6 parishes, embracing a total of 44

acres; 9 demonstrations with brussels sprouts in 3 parishes on $16\frac{1}{2}$ acres; and 6 pecan demonstrations in 2 parishes on $5\frac{3}{4}$ acres. The pecan specialist began work January 1, 1916, visited 23 pecan nurseries, gave 31 demonstrations in budding and grafting, with a total attendance of 190, gathered planting records from 41 orchards in 19 parishes, judged fruit and nuts in 6 schools, and gave 8 demonstrations in grafting and budding at fairs.

Marketing.—This work is carried on in cooperation with the Office of Markets and Rural Organization of the United States Department of Agriculture. The specialist in charge of the work has been very active and helpful in working up interest in the home curing of meats by getting the local ice factories to use their cold-storage rooms for this purpose. He has also assisted in connection with the organization of cooperative associations for the marketing of dairy products and for finding markets for eggs, poultry, etc. Shipping associations were organized in one parish, and progress was made in organizing associations in other sections. Specially noteworthy service was rendered the sheep raisers of the pine lands of the State in aiding them to dispose of their wool at a very material advantage. Very valuable assistance was rendered in locating markets for truck products and in the marketing of the oat crop of the State.

OTHER PROJECTS.

Live stock.—The most important extension work outside of the Smith-Lever projects consists of live-stock extension work financed under special appropriation of the Federal Congress for "Live-stock investigations and demonstrations in the cane sugar and cotton districts." This work is jointly supervised by the Chief of the Bureau of Plant Industry and the Chief of the Dairy Division, United States Department of Agriculture, and the director of extension of Louisiana. The director of extension has immediate responsibility for the direction of the work.

The results of the past year were definite and satisfactory because of the effort to limit the activities of the specialists to specific demonstrations, including 28 beef-cattle demonstrations, 45 hog demonstrations, and 17 poultry demonstrations, which were well distributed over the State.

The specialists in this work greatly assisted in developing a sentiment for the passage of the State-wide tick-eradication law.

The farmers were aided in purchasing breeding animals for the improvement of the herds of various farmers in the State and were

given practical assistance in the building of silos and barns. The specialists in poultry and hog raising also rendered a great deal of assistance to the farmers in general, and were of very material assistance to the county agents in giving specific advice along these lines. The specialists in this project are used largely at extension schools throughout the State.

OUTLOOK.

All the more important features of the extension work in Louisiana are progressing satisfactorily. The extension division has been fortunate in securing and retaining efficient earnest workers in all lines and there has been no incident to mar the good feeling and cooperation between all departments of the service. The merits of the work are rapidly being recognized by the people of the State, and under these conditions, with a larger amount of extension funds available, making it possible to further extend and perfect the work, the prospects for the coming year are particularly bright.

MARYLAND.

Maryland State College of Agriculture, *College Park.*

THOMAS B. SYMONS, *Director.*

Organization and administration.—There were no marked changes in the extension organization during the year. Relations with the other divisions of the institution were exceedingly cordial and cooperative. During the last year there was a reorganization of the institution to the extent of securing a new charter, making it a wholly State institution. There was also a change in the board of control by the formation of a State board of agriculture, which is also the board of trustees of the college. This board has charge of all agricultural activities in the State. The relations of the State department of public instruction and the extension service were cordial and cooperative. Public-school teachers cooperate and with county agents and specialists in boys' and girls' club work effort is being made to thoroughly coordinate the boys' and girls' club work. County agents and specialists aid in institute meetings wherever possible.

At the present time the extension forces consist of the director, 1 assistant in charge of county-agent work, 1 assistant in charge of home demonstration and girls' club work, 1 assistant in charge of boys' club work, 16 county agents, 10 women agents, and 12 specialists, of which 7 are engaged in instructional work part of their time.

This is an increase during the year of 4 county agents, 3 women agents, and 8 part-time specialists.

Additional equipment in the form of slides, lanterns, and other illustrative material was secured. The county agents were supplied with equipment for demonstration purposes in hog-cholera work, also scales for use in boys' club work. A limited number of books were secured for the specialists. Office accommodations for the service have been inadequate, and it has been necessary to put up with crowded conditions in different buildings at the institution. Recently a sufficiently large building for the entire extension force was leased, which relieves the situation pending the completion of the new agricultural building.

Boys' club work.—The development of boys' clubs was begun practically in 1915. In a few counties prior to that time some good work had been done. The work is supervised by a State boys' club agent. The work in the field is performed by this agent and the county agents cooperating with school authorities, business men, etc. Two kinds of clubs have been organized, corn and potato. The county agents organize and assist in carrying on the boys' club work. Local agents were appointed during the summer season for from two to six weeks, chiefly in counties where there were no county agents, to supervise boys' club work. In corn clubs there were enrolled 488 boys. Of this number, 206 reported 12,793.55 bushels of corn grown on their acres. The average number of bushels grown by the boys per acre was 62.1, at an average cost per bushel of 31.2 cents. Three boys made 100 or more bushels on their acres and seven made between 90 and 100 bushels. In potato clubs there were 137 boys. Fifty-six of them grew 1,390 bushels on their one-eighth-acre plats, or at the rate of 198.4 bushels per acre. The average cost per bushel was 33.4 cents.

There was expended under this project for this fiscal year the sum of \$2,935.43.

Publications.—A bimonthly two-page circular, "The Farm Adviser," was the only regular publication issued by the extension division during the year. Material for this publication is contributed by the various extension workers. A total of 30,000 copies was issued. Two circulars, 5,000 copies each, were published, also 5,000 copies of the last annual report of the director of extension. The regular mailing list to farmers of the State contained about 24,000 names, but all publications are not sent to the entire list.

Finances.—Conditions regarding revenue for the extension service have been greatly improved through appropriations by the State legislature which will become available October 1, 1916. The follow-

ing funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal_____	\$17, 746. 73
Smith-Lever, State_____	7, 746. 73
United States Department of Agriculture, farmers' co- operative demonstration work_____	22, 320. 00
State appropriation (State horticultural board)_____	8, 050. 00
County appropriations_____	11, 050. 00
Total_____	66, 913. 46

Smith-Lever funds were used in support of the following projects: Administration, printing and distribution, county agents, boys' clubs, home demonstration and girls' club work, agronomy, farm management, poultry, movable schools, dairying, rural organization, horticulture, plant diseases, rural engineering, animal husbandry, and negro work. United States Department of Agriculture funds were used in support of the following projects: Administration, county agents, boys' clubs, home economics, and dairying.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—There are now 18 county agents in Maryland. The passage of a law by the last legislature, appropriating \$1,000 a county for the express purpose of assisting in the payment of salaries of county agents, is a convincing demonstration that they have won the confidence of the public and have made good from a practical standpoint. Efforts are being made to more effectively coordinate the work of the county agents with that of the specialists of the service and with the college. Their work during the past year included demonstrations in corn, wheat, tobacco, winter oats, crimson clover, the various legumes, Irish potatoes, and other crops; also, demonstrations in orchard work, cattle feeding, and cow testing; the encouragement of better live stock for breeding purposes; educational campaigns for prevention and treatment of live-stock diseases and pests; fertilizer demonstrations; building of silos; use of lime; perfection of farmers' organizations, etc. The State agent reports that there were 36 demonstrations in tobacco, making an average yield of 1,212½ pounds per acre; 214 corn demonstrations, which made an average yield of 56½ bushels per acre; 168 wheat demonstrations, which made an average of 22 bushels per acre; and 118 other demonstrations in oats, rye, buckwheat, and barley with equally as good average yields as in the other grains. There were 584 demonstrations in the leading legume crops, 5 sweet-potato demonstrations, making an average of 200 bushels per acre; 43 Irish-potato demonstrations, making an average yield of 165 bushels

per acre; and 32 tomato-growing demonstrations, that made an average of $5\frac{1}{2}$ tons per acre. Instructions were given in the culture of 220,034 trees in 390 orchard demonstrations. Eighty-four pure-bred bulls and 205 registered heifers were brought into the State as a result of the agents' activities, also 107 bulls and 25 pure-bred heifers of the beef type. There were also brought in for breeding purposes 510 pure-bred hogs and 207 registered sheep. Two thousand nine hundred and ninety chickens, 750 turkeys, 75 ducks, 100 geese, and 25 guineas have been cared for according to the methods advocated. Five thousand seven hundred and forty-four head of live stock have been treated for diseases or pests at the suggestion of the county agent. One hundred and eighty-four farmers used home-mixed fertilizers and 111 top-dressed crops at agents' suggestions; 601 farmers were induced to take better care of manure and 187 bought manure spreaders; 139 silos were built; 1,616 farmers used 29,425 tons of lime to improve the condition of soils; and 44 farmers' clubs have been organized. The agents have visited 12,808 farms and addressed 1,107 meetings.

There was allotted to the county-agent work the past year from all sources \$25,079.74.

Negro demonstration work.—This work was begun May 1 for giving special assistance to the large population of negro farmers in some counties. Chief attention was given to the organization of the work, but assistance was given in the control of hog cholera, promoting local exhibits by colored farmers, and aiding in the study of agriculture in the rural colored schools. The specialist in charge gave 27 practical demonstrations in seed-corn selection, 18 demonstrations in inoculation of hogs for cholera, 11 demonstrations with peas and beans, organized 7 clubs, addressed 66 meetings, and visited 700 farmers.

Home demonstration and girls' club work.—In Maryland 10 counties have been organized in home-demonstration work, with 4 county agents employed full time, the remainder part time. The work has been supervised by a State agent and an assistant State agent, the latter position having been vacant since July 1. Local aid has been raised through county boards of education except in two counties, in one of which it was subscribed by an individual and in another raised through a school. The enrollment in canning clubs was 1,379, of whom 904 reported. In poultry clubs there were enrolled 93 girls, of whom 66 reported. Fourteen thousand and twenty-seven containers of fruits and vegetables were packed by club members. These girls made 657 uniform caps, 641 aprons, 24 dresses, 475 towels, 65 holders, and 194 workbags. Fifty-six clubs held 679 meetings throughout the season. Considerable progress has been made in popularizing the garden work among girls. There are now 20 winter-garden dem-

onstrations in operation. In Frederick County the 14 girls who completed the required work were given a banquet on November 10 by the proprietor of one of the local hotels.

In each of the 10 counties organized an exhibit of club work was made either at the county fair or at the grange fair. These exhibits have done much to advertise the work. At the Maryland horticultural exhibit in Baltimore an exhibit of club products from each county was shown. The Baltimore Sun and the business men of Baltimore gave a prize-winners' trip to Baltimore, Washington, and Annapolis, awards being made to girls in each county. In each city the girls were entertained by the Federation of Women's Clubs. One \$50 scholarship and one \$75 scholarship have been contributed for an award for efficient club work. In two counties demonstrations in bread making have been carried on successfully by the girls. There are now 17 women's clubs. Among the labor-saving devices reported are 32 fireless cookers, 7 iceless refrigerators, 32 flytraps, 2 kitchen cabinets, 35 floor maps, 3 waterworks systems, and other miscellaneous ones. Twelve winter-garden demonstrations are reported among women. Poultry products to the value of \$450 have been produced under demonstration methods.

There was expended under this project for this fiscal year the sum of \$9,875.70.

Poultry work.—The specialist in poultry devoted only part time to extension work. He assisted in extension-school work, conducted some demonstrations, and delivered addresses on poultry raising.

Extension schools.—These schools usually continue four days at a given place. They serve to carry the college short-course work to the farmers and their families. Only two subjects are given at any one course. Extension schools in agriculture and home economics were held at 11 different points in the State.

Farm management.—The object of this work was the dissemination of information on farm management by means of demonstrations in crop rotation, soil building, farm accounting, and other allied subjects. The leader of this project devotes two-thirds of his time to extension activities. In response to county agents' requests a general survey of farm conditions was made, and advice was given as to the best general farm practice for communities. Different rotations on various farms are being carried out under the county agents. The specialist also assisted in extension-school work and otherwise aided in general extension in counties having no county agents.

Dairy work.—The dairy project was continued, as heretofore, in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture. The specialist in charge of this work devoted his entire time to it. The building of a new type of

silo at a comparatively low cost was encouraged. Instruction was given dairymen in methods of feeding and care of cows for the production of milk of a high quality. Eight self-supporting cow-testing associations were organized and two others are now being organized. The specialist visited 521 farms, 286 of these visits being in company with the county agents. He addressed 24 meetings, with an attendance of 1,956, and conducted 4 extension schools, with an attendance of 537.

Animal industry.—This work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture, and provided for the improvement of all kinds of live stock except dairy cattle. Special efforts were made to develop the swine, sheep, and cattle industry, particularly by teaching the best methods of controlling hog cholera and tuberculosis. Educational work was done at every opportunity along lines of proper feeding, management, and sanitation. The specialist in animal husbandry visited 15 counties, gave 7 lectures, to a total of 631 persons, gave 19 hog-cholera demonstrations and started 3 breeding demonstrations, visited 89 farmers in company with county agents, and judged stock at 5 agricultural fairs.

Agronomy.—The leader in this project was a part-time extension specialist, one-half of his time being given to experiment-station work. There were 25 demonstrations in wheat growing, 74 in alfalfa, 64 in soy beans, and 26 in Sudan grass. Ten addresses were made at farmers' meetings, and exhibits were judged at 10 grain shows arranged by the county agents.

Plant diseases.—Successful demonstrations were conducted for the control of brown rot and scab on peaches. The specialist superintended the application of self-boiled lime-sulphur, visiting all demonstrations two or three times. Efforts were made by the specialists and county agents to control tomato blight and potato diseases. Twelve demonstrations of approximately 30,400 peach trees for the control of brown rot and scab were given. There were 8 other spraying demonstrations, at which there was an attendance of 148 persons, and 28 pruning demonstrations, with an attendance of 896. Twenty public lectures were given, with an attendance of 1,475, and 49 trips taken to give advice.

Rural organization.—Two part-time specialists who devoted as much time to the work as their other duties would permit were employed in this work. They were of great assistance to the county agents and the service as a whole. In addition to making addresses and attending conferences for the promotion of rural organization, much follow-up work was done by correspondence, furnishing constitutions and by-laws for organizations. An association was or-

ganized in western Maryland for the growing and marketing of seed potatoes. Fifty-five addresses were delivered and 20 rural conferences were attended.

Rural engineering.—Under this project three part-time specialists devoted such time to the work as their college duties would permit. The aim of the project is to give instruction to aid farmers, through the county agents, in conducting demonstrations in farm engineering problems.

Horticulture.—This project provides for giving instruction to farmers and fruit growers in planting, cultivation, pruning and spraying of trees, and the thinning, harvesting, and packing of fruit. The specialist in charge devotes his entire time to the work. Demonstrations are conducted through the county agents. Permanent demonstrations are in progress in nine counties as an illustration of a first-year demonstration in home-orchard work. Special interest centered in the grading and packing of fruit and in giving instruction regarding the new Maryland apple grading and packing law. The specialist reports that 85 demonstrations were conducted, and 102 visits were made to fruit growers or demonstration meetings attended by 428 persons. He also attended 25 miscellaneous meetings and gave 45 public lectures.

OTHER PROJECTS.

Landscape gardening.—This project was supported by State extension funds exclusive of Smith-Lever funds. The specialist devoted as much time to this work as his college duties would permit. There is a great demand for assistance in the improvement of the grounds of homes, schools, and municipal institutions. The specialist reports visiting 20 places, delivering 10 lectures to 480 people, and submitting 9 blue prints.

OUTLOOK.

The State appropriation of \$1,000 for each county to apply on the salary of a county agent solves the problem of fair salaries for Maryland county agents. The financial support given the county and home-demonstration agent work by the State and the counties is all that could be desired. This makes it possible to employ the very best talent for agents, both men and women, and to furnish them with the best equipment to be obtained for securing ideal results. With strong agents in each county and a thorough coordination of their work with that of the specialists a great work for the rural homes of Maryland should be accomplished.

MISSISSIPPI.

Agricultural and Mechanical College, *Agricultural College*.

EDWARD R. LLOYD, *Director*.

Organization and administration.—The same general plans of work were carried out during this fiscal year as were in operation last year. There were no important changes in the administrative force. At the close of the fiscal year the State agent was made assistant director. There are now in force 13 approved projects, employing a total of 108 trained men and women. The force as now constituted is composed of the director, a State agent and 3 district agents in charge of the county-agent work, 43 county agents, an assistant State agent in charge of club work with 2 assistants, a woman State agent in charge of canning clubs and home economics with 2 assistants, 35 women county agents, 1 negro district agent, and 5 local agents; also 9 full-time and 1 part-time specialist. This is an increase during the year of 12 county agents and a decrease of 4 women agents and 1 full-time specialist.

In addition to the continuance of the regular field demonstrations with the staple crops in the county-agent work it was found advisable to put on several special campaigns, one for the promotion of the live-stock industry by agitating the question of tick eradication; another for the increased planting of the various legumes for forage and soil-building crops. In these campaigns the agents took a leading part. The increase in legume and other forage crops and the successful tick-eradication work made it possible to push the live-stock industry much faster than it could otherwise have been done. The campaign for diversification of crops was pushed vigorously, as during previous years.

The relations between the extension division forces and those of the college and experiment station have been very friendly. There was also friendly cooperation between the extension division and the State department of agriculture as well as with the State department of public instruction, the latter cooperating very cordially in the handling of the boys' and girls' club work. The business interests of the State have been specially helpful in all lines of the work.

Publications.—The extension division has published 17 bulletins and circulars. Plate material also was furnished to the press of the State each week. Material for the extension publications was prepared by members of the extension, college, and experiment station forces. A mailing list of about 10,000 names was kept by the extension division, to which all literatures was sent. The publications were also sent to bankers, business men, county superintendents of education, and other officials throughout the State, and also to any-

one who made request for them. A large quantity of the literature is distributed in person by the county agents. Mailing lists are made up and names sent in to the director's office by county agents, specialists, and others.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal-----	\$29, 329. 36
Smith-Lever, State -----	19, 329. 36
United States Department of Agriculture, farmers' co-operative demonstration work-----	45, 000. 00
United States Department of Agriculture, other bureaus-----	10, 940. 00
State appropriation-----	3, 807. 50
County appropriations (not Smith-Lever offsets)-----	2, 980. 53
College appropriations-----	3, 000. 00
Other appropriations within the State-----	873. 33
Total-----	115, 260. 08

Smith-Lever funds were used in support of the following projects: Organization and administration, county agents, home economics and girls' club work, boys' club work, printing, community organization, engineering, animal husbandry, horticulture, farm management, and marketing clubs. United States Department of Agriculture funds were used in support of the following projects: Administration, county agents, boys' clubs, and home economics and girls' club work. Funds from the Bureau of Animal Industry, United States Department of Agriculture, were used in support of the two projects dairying and live stock in tick-freed area. The projects movable schools and agricultural teaching were supported entirely from State funds.

A detailed statement of receipts and expenditures has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—During the fiscal year there were employed in the county-agent work 1 State agent, 1 assistant State agent in charge of boys' work with 2 assistants, 3 white and 1 negro district agents, and 43 white county agents, and 5 negro local agents. Demonstrations were conducted on 3,294 farms under their supervision. The principal lines of work were undertaken with a view to teaching farmers how to grow cotton profitably under weevil conditions. There were demonstrations, also, in the best methods of handling dairy cattle and other live stock and in growing feed crops. Special effort was made, too, in the organization of farmers for cooperative marketing of hogs and cattle in car lots. In one county alone the agent assisted

in shipping over a hundred thousand dollars' worth of live stock. The following is a brief summary of some of the activities of the agents: Miles traveled by all agents, 393,623; 3,813 meetings were held, with an attendance of 124,414; 30,422 official letters written; 912 articles prepared for publication; 72,903 department and college bulletins distributed; number of visits to farmers, club members, and others, 51,128; number of calls at office, 31,257. Through the influence of the agents there was brought into the State the following pure-bred live stock for breeding purposes: Horses, 206; dairy cattle, 307; beef cattle, 1,140; hogs, 2,136; and sheep, 55. One hundred and ten thousand eight hundred and fifty-eight hogs were treated for cholera, 20,411 horses for anthrax, 190 dipping vats were built, and 65,135 cattle dipped. Twelve thousand eight hundred and ninety-nine farmers were advised in the use of commercial fertilizers; 1,253 farmers home mixed their fertilizers; 144 farmers used lime on their lands; 118 new silos were constructed; 307 new farm buildings were erected. Building plans furnished, 283; number of water systems installed, 184; home lighting systems, 70; number of houses screened, 5,113; flytraps installed, 12,753. Two hundred and thirty-six telephone systems were installed; 1,606 home gardens were started; 7,519 systematic crop rotations started; 685 pastures started; 671 home orchards started; 1,142 farmers removed stumps; 468 drainage systems were established; 5,851 farmers were induced to drain all or part of their farms; 2,203 farmers terraced their land; 12,693 improved farm implements were bought; 19 county fairs were held.

There were 439 corn demonstrations, embracing 11,281 acres, making an average yield of 37.4 bushels; 253 cotton demonstrations, 18,907 acres, with a yield of 1,218 pounds of seed cotton per acre; 222 oat demonstrations, 6,353 acres, with an average yield of 32.5 bushels per acre; 82 wheat demonstrations, 835 acres, average yield, 20.8 bushels per acre; 647 demonstrations in hay, forage, and cover crops, 11,781 acres; 188 cowpea demonstrations, 8,354 acres, average yield, 9.7 bushels of seed and 2.42 tons of hay per acre; 116 soybean demonstrations, 1,178 acres, with an average of 18.9 bushels of seed and 1.57 tons of hay per acre; 175 velvet-bean demonstrations, 4,030 acres, with 17.7 bushels of seed and 5.5 tons of hay per acre; 162 demonstrations in lespedeza, containing 14,900 acres, giving an average yield of 2.77 tons of hay per acre.

The following is a summary of the work done by the negro agents: Total travel, 29,632 miles; held 806 meetings, with an attendance of 23,050; wrote 660 official letters; distributed 6,281 department and college circulars; visited 116 schools; had 540 field-crop demonstrations; 617 miscellaneous demonstrations; made a total of 5,229 visits to farmers, club members, and others. Seven hundred and ninety-

one persons interviewed the agents at their offices. Had 74 corn demonstrations, with an average yield of 44.41 bushels per acre; 66 cotton demonstrations, with an average of 756.45 pounds of seed cotton per acre; 27 oat demonstrations, with an average yield of 40.69 bushels per acre. The other crop demonstrations were of a miscellaneous character, but showed equally as good results as those mentioned above. Through the influence of these local agents negro farmers were induced to buy 55 head of pure-blood horses, 5 dairy cattle, 4 breeding cattle, and 30 head of hogs. There were conducted among them 209 poultry demonstrations. Poultry management was improved on 111 farms. The agents treated 1,236 animals for various kinds of diseases; assisted in building 2 dipping vats; advised 1,500 farmers in the use of commercial fertilizers; had 87 to home mix their fertilizer; 4 bought lime. Five new silos were built; 89 new buildings erected, 344 improved; 20 building plans furnished; 535 homes painted and whitewashed; 10 waterworks installed; 5 lighting systems installed; 1,580 homes screened. Number of telephone systems installed, 55. Five hundred and forty home gardens were started; 271 farmers saved good seed; 610 are growing sugar cane for their sirup; 318 started crop rotations; 540 pastures started; 163 home-demonstration orchards started; 16 farmers removed stumps; 45 drainage systems started; 671 farmers drained part or all of their farms; 5 terraced their land, and many other things which can not be mentioned in this summary. About 1,000 negro boys enrolled in the corn-club work. A number of successful meetings were held for negroes during the year under the movable-school project.

There was expended under this project for this fiscal year the sum of \$70,806.62.

Boys' club work.—The boys' club work was supervised by an assistant State agent in charge of club work. Under him was an assistant in pig-club work, one on corn clubs, and one in animal husbandry. The club work was carried on in close cooperation with the county agents and local school authorities. Pig and baby-beef clubs were financed largely by the bankers of the State, who furnished money to the boys on their personal notes for the purchase of their animals. In the corn clubs there were enrolled 4,220 boys; 568 made reports showing an average yield of 42.47 bushels per acre at an average cost of 53 cents per bushel. Ten boys grew 100 or more bushels on their acres.

Baby-beef clubs were organized in 14 counties, with a total enrollment of 617; 330 reported. Forty-two pure-bred bulls, valued at \$9,535, were awarded as prizes. These beeves made an average daily gain of 1.77 pounds. The average cost per hundredweight of gain was \$3.60.

There were 3,022 members enrolled in pig clubs; 933 members reported. One thousand four hundred and forty pure-bred pigs were grown by the boys. The total value of the pigs grown by the boys reporting was \$31,727.97. One thousand and forty pigs were exhibited at county fairs and 83 at the State fair.

There was expended under this project for this fiscal year the sum of \$6,469.46.

Home demonstration and girls' club work.—The State home-demonstration workers include a State agent, 2 assistant State agents, a poultry specialist, and 36 county agents, all of whom are women. Other specialists in the agricultural and mechanical college assist the agents in giving instructions in butter making, gardening, and marketing. Twenty-three agents were employed for the entire year, the average term for all being eight months.

There was enrolled 7,030 canning-club members, of whom 3,883 rendered reports; 700 poultry-club members, of whom 530 reported; and 1,897 women, of whom 1,267 have done active work. Two hundred and thirty-seven girls have winter gardens in operation. The canning-club girls produced 536,907 containers of vegetables from tenth-acre gardens and 83,161 containers from farm and orchard, the total value of which was \$103,007.51. These girls made 3,482 caps and aprons, 158 uniform dresses, 1,193 towels, and 1,069 holders for use in their canning demonstrations. Certificates were awarded to 39 girls who had satisfactorily completed four years' canning or poultry-club work. The quality of club products has improved and a good system of marketing is being developed. In every county a council, composed of the presidents of the community clubs, is organized for marketing and buying. There is also a State marketing committee which assists the local groups and makes recommendations about containers, labels, and markets. Special-sale days have been successful and in many cases have developed into regular marketing days in the county sites.

Short courses have been held in each county, ordinarily at the agricultural high schools. The Mississippi Bankers' Association gave a \$100 scholarship to the Mississippi Normal College. The Tupelo Cotton Mills gave a cheviot dress to every club girl who packed 50 cans of vegetables and made a satisfactory report. The value of these dresses amounted to over \$1,000.

Boys' and girls' poultry clubs were organized in 24 counties, 9,751 eggs set, 7,390 birds raised, with a total value of \$4,161.25.

One hundred and ninety clubs have been organized among women. These hold regular meetings and follow out consecutive programs throughout the year. One thousand one hundred and sixty-eight demonstrations in cooking have been given and the following labor-saving devices made: One hundred and seventy-two fireless cookers,

198 iceless refrigerators, 283 flytraps, 31 home water systems installed, 249 fly screens made, and 207 other devices made. These include improved equipment for butter making, 1,600 pounds of butter having been made under demonstration methods. There have been 379 winter-garden demonstrations made by women. Three hundred and eighty-three women enrolled in poultry clubs and 25 cooperative egg-selling associations have been organized. These associations sold 1,291 cases of eggs, at a net value of \$7,106.93. The total value of all sales of poultry products is \$10,139.08.

The Centerville association of Wilkinson County had a deposit of \$1,015.32 in the local bank, the net amount received by its members for eggs sold during seven months, all summer months included. The best individual profits that have been made by women are \$218.16 for 90 hens, and \$155.05 from 65 hens. These estimates take no account of eggs or chickens used at home.

In connection with the offices of county agents, 10 rest rooms for country women have been established and are proving most useful. A home waterworks campaign was carried out with the cooperation of the agricultural engineering department of the college. The department of health has given assistance in demonstrations in community sanitation and in better babies contest.

There was expended under this project for this fiscal year the sum of \$27,845.97.

Animal husbandry.—This work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture, and was directed for the improving of the different beef breeds of cattle by the use of pure-bred bulls and the selection of the best type of native and grade cows for breeding herds. A number of bankers were induced to bring in car lots of pure-bred bulls for distribution among the farmers. Some bankers pledged themselves to furnish money without interest for the purchase of these animals. Breeders' associations were formed among breeders of both hogs and cattle and cooperative sales among breeders were held. One hundred and eleven addresses were given, with an attendance of 8,845. Assistance was given in the construction of 4 silos and in 10 calf and steer feeding demonstrations, at which 785 calves and 660 steers were fed. Sixty-two pure-bred bulls, 22 pure-bred cows, and 130 grade cows were placed. The average price of these cattle was \$121 each. Assistance was given farmers in planning cattle barns, cattle sheds, feed lots, and all other lines of work connected with the breeding, feeding, handling, and marketing of beef cattle.

Dairying.—The work under this project was carried on in cooperation with the Dairy Division of the Bureau of Animal Industry of the United States Department of Agriculture. A large part of the work of the four dairy specialists under this project was devoted

to strengthening creameries already established and encouraging the farmers to make the best of them. One of these specialists gave his entire time to improving the sanitation, efficiency, and quality of the products of these creameries. The other three were out among the farmers, encouraging the use of better barns, sanitary methods of handling cream, the proper use of feed, and the use of herd-record books for the raising of the standard of the milk cows in the herd. A number of cream routes were established. In territories not yet ready for creameries the dairy specialists have assisted the farmers in making a better quality of farm butter and in finding markets for it. Eighty-seven meetings were held, 14 silos and 13 new barns built, 4 old barns remodeled, and 10 new dairy houses built. Dairy exhibits were made at two fairs, 15 herd records were kept with a total of 267 cows, 52 pure-bred dairy animals were purchased, and 3 dairy associations were organized.

Marketing.—The efforts of the specialist in marketing have been in developing cooperative shipping in car lots. All of this work is done in connection with county agents, who work up the shipments, specialists assisting in the grading, routing, and shipping. A number of permanent shipping stations have been established, where the shipments are now being made without further assistance from the specialists. In five towns trade days were established for the sale of all farm products. Six car-lot centers for peanut shipping have been established. Twenty-seven community conferences were held in the flooded districts, at which there was an attendance of 3,500 people. Meetings for the marketing of perishable products have been held at many points.

Community organization.—The scope of the work under this project includes both social and economic organizations. A few community-welfare and truck-growing associations have been formed. Assistance was given in the organization of shipping associations for stock, hay, and other products. A specialist was assigned to the work of organizing hay-growers associations in seven counties in the eastern part of the State. The work was carried on in cooperation with the county agents. Fourteen days were spent in assisting county agents in community gatherings.

Engineering.—The activities of the agricultural engineering specialist during the year was specially devoted to the promotion of home waterworks and a regular campaign was carried on for this purpose. Several small, inexpensive systems were designed by the engineering specialist and were demonstrated to the farmers throughout the State. Thirty-three different organizations besides all the extension workers cooperated in this campaign. During the week of November 12 waterworks meetings were held in every county and a waterworks catechism was taught in all the Mississippi schools.

One thousand six hundred and thirty-eight blue prints for farm buildings, with estimates of cost for constructing, were sent out. Demonstrations in terracing and drainage were carried on in cooperation with the county agents during the spring and fall.

Horticulture.—The principal work accomplished under this project was furnishing plans for home gardens, home orchards, and giving demonstrations in pruning and spraying. Organized work has been inaugurated in 10 counties. The specialist has visited 15 counties, giving lectures and demonstrations and helping to get the work organized. In these counties 50 meetings were held with approximately 2,000 people in attendance. Nine circulars have been prepared, four of them containing plans for spring and fall planting varieties, dates, and cultural directions. Monthly sheets of instructions and suggestions for members of canning clubs, home-garden clubs, and for demonstrators working under the supervision of the extension department. Outlines have been worked out for definite, specific demonstrations upon which to expand the horticultural possibilities of the State.

Farm management and information service.—Two-thirds of the time of the specialist in farm management was devoted to extension work and one-third to teaching. One hundred and twenty farms were surveyed and records of the year's business taken. There were 36 farm-management demonstrations. The bulletins were written, also 436 news items concerning the work for the daily and weekly papers.

OTHER PROJECTS.

Extension schools.—The work under this project was financed entirely from college funds. One hundred and six movable schools of from one to four days' duration have been held throughout the State, the most popular of which was the one-day school. There was a total attendance of 19,465. Seven separate special meetings were held for negroes, with an attendance of 2,460. Many negroes also attended the regular meetings throughout the State. Dairying, hog raising, boys' and girls' clubs, and marketing problems were special features of these meetings. Many demonstrations were given in inoculating soils for clover.

OUTLOOK.

The demand for men and women agents in counties where none have been before, and the willingness of the county boards of supervisors to put up sufficient funds to employ trained and experienced agents, is sufficient evidence that the extension work is getting a hold on the people. Increased funds from the extension division and the counties have made it possible to attract strong men and

women for the service. The personnel of the extension force has been greatly improved during the year. The leaders in the work felt it was more important to strengthen and expand the lines of work already begun than to take up new features.

The campaigns for increasing the interest in better live stock, soil improvement, pastures, and the growing of plenty of food and forage crops have been pushed with great success. The working up of a system of cooperative shipment of hogs and other live stock by a number of the county agents has been helpful to the farmers and attracted a great deal of attention. The good spirit and harmonious feeling that has existed between all members of the force as well as the cooperating forces makes it safe to state that the outlook for the extension division in Mississippi for next year is decidedly good.

NORTH CAROLINA.

Extension Division, College of Agriculture and Mechanic Arts and State Department of Agriculture, *Raleigh*.

B. W. KILGORE, *Director*.

Organization and administration.—The extension work in North Carolina is conducted jointly by the College of Agriculture and Mechanic Arts and the State department of agriculture, in cooperation with the United States Department of Agriculture, the work being under the control, on the part of the State, of the joint committee for agricultural work, provided for by an act of the legislature passed in 1913.

There were no important changes in the supervising force or the organization during the past year and no change in the general plan of work. The director, who has entire supervision of the extension service, is also director of the experiment station and an ex officio member of the joint committee in the State for agricultural extension activities. The extension force as now organized consists of the director, the State agent, and 3 district agents in charge of county agents' work, the State boys' club agent and 1 assistant in charge of boys' club work, a State home-demonstration agent and 4 assistants in charge of work for women and girls, the negro boys' club agent in charge of the boys' club work for negroes, 72 county agents, 44 women agents, 18 full-time specialists, and 11 part-time specialists who devote practically half of their time to extension work. This is an increase during the present year of 8 county agents and 8 women agents.

The extension forces are housed in buildings furnished by the State department of agriculture and the College of Agriculture and Mechanic Arts, and the office force has been given all the necessary fur-

niture and equipment for the successful carrying on of their field work.

The extension division has friendly coöperative relations with the State Normal and Industrial College, and the State department of education, the Farmers' Union, the Negro Agricultural and Technical College, the county boards of supervisors, the railroads, boards of trade, chambers of commerce, banks, and various other commercial and farmers' organizations.

Publications.—Nine extension circulars, with a total of 123,000 copies, were issued during the year. The material for these publications was collected and prepared for publication by members of the extension force, and also the college and experiment station force. The manuscripts were submitted for approval as to subject matter to the heads of the department of the college or station under which they would come. In addition to this, the editor in charge of publications has furnished agricultural articles to the press of the State from time to time. About 1,500 copies of the weekly publication, entitled "The Extension Farm News," were sent to the papers of the State and to a limited number of others on the mailing list. Many of the items contained are copied by the papers throughout the State. A large amount of multigraph matter for special use by the different workers in the division has been prepared and sent out from time to time. The circulars and other publications are distributed through the county agents and through regular mailing lists which are kept in the editor's office, which are classified so that the parties on the lists receive only those publications in which they are especially interested.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal.....	\$32, 952. 65
Smith-Lever, State.....	22, 952. 65
United States Department of Agriculture, farmers' co- operative demonstration work	41, 000. 00
United States Department of Agriculture, Bureau of Animal Industry.....	15, 860. 00
State appropriations.....	16, 424. 35
County appropriations.....	62, 715. 00
Total.....	191, 904. 65

Smith-Lever funds were used in support of the following projects: Administration, printing, county agents, home economics and girls' club work, boys' clubs, dairying, fruit and truck growing, agronomy, cotton growing and marketing, plant diseases, negro boys' club work, drainage, and beef cattle. Funds from the United States Department of Agriculture were used in support of the following projects:

County agents, home economics and girls' club work, boys' clubs, dairying and beef cattle, pig clubs, and poultry clubs.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—There were 68 county agents engaged in farm-demonstration work and 4 negro local agents. These county agents have not only continued to carry on definite demonstrations with the staple farm crops, but have, in addition, given assistance and advice to the farmers on almost every other agricultural problem. In giving this general advice the county agents have had the help and cooperation not only of the specialists in the extension division, but also of those in the State college of agriculture, the experiment station, the State department of agriculture, and of the Federal Department of Agriculture. The specialists' services have been particularly valuable to the agents on such problems as soil improvement, live stock, poultry, treatment of animal and plant pests, the building of silos, community organization, orchard work, drainage, planning of farm buildings, and many other things which work toward the betterment of farm life. As a whole, the men at work in the counties have gotten good results. They have been able to reach and keep the interest of the individual farmers and have succeeded in group organization work, which enables them to reach a much larger number of people. No agent is considered fitted for his work until he has become a well-rounded agricultural student and goes to his particular county with the idea of service as his leading aim. There is noted a great improvement in the personnel of the county agents as a body in the last 12 months.

The following summary gives some of the activities of the county agent: Help was given in the installation of waterworks in 586 homes; screening 4,072 homes; putting out or in some way helping to handle or care for 235,872 fruit trees; advising 23,551 farmers regarding the use of fertilizers; 3,982 farmers influenced to use lime; 156 farmers' or community clubs were organized to take up definite work in farm problems, with a membership of 7,614; 85 drainage systems were established; 492 farmers were induced to drain all or parts of their farms; the agents assisted in holding 3,372 agricultural meetings and 644 field meetings.

Through the influence of agents the following live stock was brought into the State: Horses and mares, 134; dairy cattle, 653; beef cattle, 384; hogs, 2,039; sheep and goats, 635; more than 500 live-stock feeding demonstrations with approximately 3,287 animals; hogs treated for cholera, 32,338.

There was expended under this project for this fiscal year the sum of \$88,703.14.

Data for various activities of the county agents are given in the following table:

Some results of field-crop demonstrations, North Carolina, 1196.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	2,429	1,437	11,217	² 42.8	3,189	5,001	² 24.0	5,618	16,228
Cotton.....	447	268	2,062	³ 1,271.0	561	3,613	.....	1,008	5,675
Oats and wheat.....	3,604	1,413	25,569	.....	.....	.....	.....	3,604	25,569
Alfalfa.....	325	174	670	⁴ 3.5	26	110	⁴ 3.0	351	780
Clovers and vetches...	2,723	1,236	16,247	⁴ 3.3	2,465	11,890	⁴ 2.75	5,188	28,137
Other hay, forage, and cover crops.....	583	301	1,931	.....	436	1,275	.....	1,019	3,206
Cowpeas.....	322	182	2,320	⁵ 12.0 ⁶ 2.25	1,251	9,384	⁵ 9.0 ⁶ 2.0	1,573	11,704
Soy beans.....	810	452	4,557	⁵ 18.9 ⁶ 2.5	908	1,623	⁵ 18.0 ⁶ 2.0	1,718	6,180
Velvet beans.....	919	539	4,558	² 19.0	318	1,018	² 19.0	1,237	5,576
Sweet potatoes.....	127	64	163	² 193.0	.....	.....	.....	127	163
Irish potatoes.....	98	60	108	² 161.0	.....	.....	.....	98	108
Total.....	12,387	6,126	69,402	.....	9,154	33,924	.....	21,541	103,326

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.
² Bushels.
³ Pounds of seed cotton.
⁴ Tons.
⁵ Bushels of seed.
⁶ Tons of hay.

Boys' corn clubs.—The boys' club work was supervised by a State agent, who is assistant to the State agent for demonstration work. He has five assistants, who are specialists in the different phases of club work. In all cases the county agent is required to organize and assist in the boys' club work. There has been a greatly increased interest and growth in the club work during the year. Their practical and educational value has also become much better recognized. There were 3,257 members enrolled in the corn clubs; 891 of the corn-club members made complete reports, showing an average of 54.8 bushels per acre, at an average cost of 39.2 cents per bushel; 336 made more than a hundred bushels; 426 of those reporting planted cover crops on their acres and 439 selected seed corn from the field.

There was expended under this project for this fiscal year the sum of \$6,857.42.

Pig clubs.—The pig-club work is in cooperation with the Bureau of Animal Industry and is fast getting to be the most popular phase of the club work. It seems to appeal to the teachers and educators strongly. This was strikingly illustrated at the Granville County fair, where a young people's swine-judging contest was held in connection with the pig-club exhibit. The club members had 40 pigs on exhibit in this one county. The following briefly give the activi-

ties of the pig-club agent for the year: There were held 39 meetings, with an attendance of 2,396; 43 schools visited; of the numbers reporting, 140 had pure-bred pigs; the cost per pound of gain on breeding pigs was 5.98 cents and our meat pigs 5.06 cents; and 188 boys used grazing crops.

Negro boys' farm clubs.—This is the first year of the farm-makers' club work among negro boys and girls in North Carolina; and, as the parents and teachers were ignorant as to the nature and meaning of the work, it is felt that these boys and girls deserve great credit for the work they have done. Only a few of these negro children had ever heard of club work before, and hence the progress was necessarily slow at the beginning. It is now felt, however, that the work is becoming fairly well known throughout the State and that much progress will be made during 1917. There were enrolled about 1,175 boys and 204 girls in the corn and poultry clubs. Some made excellent reports, others kept very poor records, and some failed to report at all. At the State and county fairs the exhibits of negro boys have been greatly superior to those of their parents. They split the sweepstake prize at the State fair, in competition with the men, and took five of the seven prizes given for corn at the Guilford County fair. This work had the hearty cooperation of N. C. Newbold, of the State department of education, and his corps of rural supervisors, and also the support of the Agricultural and Technical College for Negroes. The average of the boys making complete reports on their corn-club work was 47 bushels per acre, at a cost of 31 cents per bushel. Four members of the club made over 100 bushels per acre.

Home demonstration.—The largest growth in any part of the extension work this year has been in the women's work. During the year 44 counties were organized in home-demonstration work. Twenty-nine of these agents gave all of their time to the work, the remainder a portion of their time. The girls and women in these counties were organized into clubs for the study of food values, the preparation of foods, the making and use of home conveniences, the canning of fruits and vegetables, sewing, cooking, and other lines of work which make for the betterment of the home and community and for additions to the family income. There were enrolled in these clubs 3,731 girls and 2,864 women. Three thousand four hundred and fifty-three girls and women reported filling 470,614 tin cans and 194,399 glass jars with fruits, vegetables, preserves, jams, and pickles; 11,367 glasses with jelly; and 4,171 bottles with catsup and grape juice, making a grand total of 680,551 containers filled. These products represent a cash value of \$117,816.46. The packages put up by the club members have been so standardized and are of such high quality that the prejudice against home products has been removed,

and the members now find a ready cash market for all their surplus goods among the merchants, hotels, and other local institutions. Some work was done in three other counties. Twenty of the counties provide their women agents with automobiles and pay the running expenses. These women agents traveled 128,468 miles during the year, held 18,748 meetings and conferences, with an attendance of 174,474, at which 8,918 demonstrations were held. The community clubs were supervised by 156 subagents or community leaders, which were employed for three months during the canning period at a nominal salary, paid from local funds. The agents caused to be bought 1,070 dairy implements; 3,193 devices for home convenience were made; 750 winter gardens were started; cooperating with commercial clubs and others, 19 rest rooms for rural women were provided in towns; 36 community fairs were held. Each woman's club carried out a definite yearly program, which included the consideration of problems of sanitation, beautifying of home grounds, and other subjects adding to home comforts. Plans for adding to the family income were mapped out by giving special instruction in canning and putting up fancy pickles and preserves. The rural women's clubs are getting strong support and cooperation from the women's clubs in the towns. In two counties the home-demonstration clubs have formed county federations. Twenty-seven scholarships in schools and colleges were awarded the girls in the different counties as prizes in the canning-club work. One hundred and five girls are reported as having paid their way, in whole or in part, in school with the proceeds of their canning-club work. One hundred and ninety-one winter gardens have been planted by girls where none were grown before. During the winter months the girls of the various canning clubs made a total of 2,331 caps, aprons, and dresses. Pine-needle basketry has been quite remunerative in some localities. At club meetings 1,640 demonstrations were given in cooking meats and vegetables and in making bread. Poultry-club work is done by both boys and girls under the supervision of the women agents and the poultry specialist.

There was expended under this project for this fiscal year the sum of \$43,270.43.

Poultry-club work.—The total enrollment in the poultry-club work for this year was 1,646. The specialist conducts his work, as far as possible, by personal visits. He tries to visit the individual homes and farms of members of the clubs and assists them in all phases of poultry raising, feeding, and care. He has been unusually successful in getting the young folks to take care of their birds. The children are also taught how to select, care for, and market eggs. To encourage this part of the work, provisions were made to have a display of eggs at the State fair. It is estimated that the members of the

club will raise 35,000 birds during the season. The majority of these birds will be saved for egg production.

Agronomy.—The specialists in agronomy has given splendid service in furnishing technical advice and instruction, through the county agents, to the farmers of the State as to the best method of preparation and cultivation of the soil, crops to be grown, fertilizers to be used, etc. Effort to get entire communities to plant the same variety of staple crops has been one of the main extension activities of the division. Demonstrations for the purpose of getting a community to plant a single good variety of cotton has been carried on in eight counties. The same kind of work with corn has been carried on in three counties. Much time and attention have been given to the question of better utilization of the soy bean and its product, for the purpose of affording the farmers a better market for their beans. Bulletins and circulars giving information on soy beans have been prepared and distributed. There has been much correspondence with farmers with reference to the methods of cultivation, fertilization, and seed selection in the handling of crops. A systematic method has been worked out by which the results from the agronomy experiments on the test farms and the central stations can be furnished to the county agents and by them to the farmers of the State.

Animal industry.—The work under this project is carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture, in the tick-free areas of the State. The principal line of work was an educational campaign among the farmers to show the need of better breeds of beef cattle. The specialists in this work cooperate with the county agent in organizing live-stock associations and in the cooperative buying of pure-bred beef animals, in arranging for and holding meetings, giving instruction as to locating, preparing and starting better pastures, improvement of barns, the building of silos, and various other things connected with a progressive live-stock campaign. A special effort was made to bring to the attention of the beef-cattle farmers the value of silos, and 15 were erected as a result of this work. Feeders were assisted in finding a market for their animals; 5,000 cattle were concentrated and disposed of through the weigh station established for that purpose; and 50 meetings were held, with an attendance of 3,500.

Dairying.—The work under the dairy project is carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture and has made satisfactory progress during the year. There are five specialists working under this project. Since the last report, exceptional interest has been shown in the cheese work. The specialist in this line has devoted all of his time to the work, and the calls for assistance in the building of new factories and in directing the work in the old ones have made it neces-

sary to employ another man for this line of work. The cheese work is confined to the western, or mountain, section of the State. Nine factories have been located at different points in the State and are being profitably operated. Farmers in these cheese communities are building silos, spring houses, etc. The dairy specialists have given much assistance and encouragement to the industry in the State. About 83 cream routes were organized last year. The dairy-extension force is giving all the assistance possible to the farmers throughout the State, working largely through the county agents; and some of the results of their activities during the year may be summed up as follows: Twenty-seven plans for building dairy barns were furnished; 26 milk houses were erected during the summer; 200 silos were built; 81 registered cattle were purchased; 53 dairy schools were conducted, with a total attendance of 3,328; 67 meetings were attended by the specialists in dairy work, at which there was an attendance of 4,872.

Fruit and truck growing.—A specialist was employed to instruct farmers in better methods of growing fruits and vegetables. In counties with agents the specialist is to cooperate with them and in the fruit-growing sections he is to furnish information and assistance direct to farmers in counties where there is no county agent. A great deal has been done to encourage better care of home orchards, and, in some cases, assistance has been rendered in commercial orchards. The work has been confined mostly to instruction in caring for the orchards, grading and packing of the fruit, and also in marketing. Some work has been done in treatment and eradication of diseases and insect pests commonly found in the orchards of the State. Demonstrations in spraying were given in 48 orchards in 30 different counties, at which there was an attendance of 1,615 persons. Fifty-three orchards, located in 18 counties, have been inspected during the year for insect pests.

Drainage.—The purpose of the work under this project is to give technical information to farmers, through the county agents and otherwise, on the best methods of draining wet lands and terracing hillside lands. The following results were accomplished by county agents and specialists cooperating: Eighty-five drainage systems were established, 492 farmers were induced to drain all or parts of their farms, 213 acres were tile drained, 4,478 acres were drained by ditches, and 1,397 farmers were induced to terrace their hillside lands.

Cotton marketing.—This project provides for giving instruction in grading and classifying cotton, the Office of Markets and Rural Organization, United States Department of Agriculture, cooperating in every way possible in this work. The work is established in 21 counties in the State and has been very beneficial to the farmers in securing proper classification of their cotton, and in this way, enabling them to get the market price for the grade which the sam-

ple of cotton would indicate. The plan is to cover the State by dividing it into 11 cotton-grading districts. The ginner furnish the grading office samples from each bale of cotton ginned. The Office of Markets and Rural Organization furnishes the ginner with the necessary containers and other supplies. The ginner are paid for the lint in the samples furnished. Samples were sent and graded from about 22.1 per cent of the bales ginned in the counties where the work was carried on. In addition to this, 13,000 bales of cotton were graded from the 18 leading cotton markets in the State. The farmers got on an average \$1.15 per bale more in all markets where they knew the grade of their cotton than did the farmers who did not know. As the buyers become more acquainted with the cotton-growing service, they become more inclined to cooperate in buying on grade and to acknowledge generally the far-reaching value in buying cotton strictly on its merits. Cotton-marketing organizations are being developed for the purpose of selling cotton in lots of 10 or more bales of uniform grade. The cotton-grading offices are placed at the best concentrating points for receiving samples.

OUTLOOK.

There was distinct progress along all lines of extension work in North Carolina during the year. The organization grew rapidly in numbers, efficiency, and influence. The financial support was liberal and a helpful, cooperative spirit was shown by all educational, business, and social organizations. The coordination of related agricultural work throughout the State has advanced beyond all expectations. The benefits of real teamwork have been demonstrated.

The force of extension workers is being constantly strengthened by the addition of better qualified men and women and better salaries are being paid. It is planned to place good agents in those counties not yet served just as fast as funds become available. Everything indicates that the extension work will exert a powerful influence in the development of the agriculture of the State along safe and profitable lines.

OKLAHOMA.

Agricultural and Mechanical College, Stillwater.

JAMES A. WILSON, *Director.*

Organization and administration.—The organization of the extension division continued the same as last year, except that the director, W. D. Bentley, resigned May 15, 1916, and was succeeded by James A. Wilson, the assistant director and State agent. At the close of the fiscal year 1916 the work of the extension division was being

carried on by the director with 6 assistants in different lines of the work, 4 district agents, 62 county agents, 21 women agents, and 6 specialists. This was an increase over last year of 1 district agent, 5 county agents, 2 assistants, and 1 specialist. There were no part-time specialists or other extension employees, except that most of the women agents were employed only from 4 to 10 months per year. The director of extension is a member of the college faculty. Weekly reports are made to the director by all assistants, specialists, and county and women agents.

Cordial relations exist between the extension-division forces and those of the experiment station and the college, and the State department of education giving financial assistance in agricultural extension work for negroes. County superintendents and teachers all over the State assist very materially in boys' and girls' club work and community organization work.

Publications.—During the fiscal year 25 circulars and 1 spray calendar were published. Fifteen of these were 4-page circulars, five were 8-page, one was 12-page, one was 14-page, and three were 16-page circulars. Of these eight were paid for out of college funds and the remainder out of Smith-Lever funds. In addition there was published a monthly poster bulletin. Before publication all manuscript is approved by the college faculty publication committee. Circulars and bulletins are written by various members of the college and extension staff. Circulars are distributed chiefly through the county agents. Requests for circulars are referred to the county agent, if there is one, otherwise they are sent direct. Copies of all circulars are sent to a mailing list of about 1,000 persons, consisting of members of the legislature, State officials, agricultural papers, colleges, and others. There is no other general mailing list to which all new circulars are sent.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$26, 255. 69
Smith-Lever, State	16, 255. 69
United States Department of Agriculture, direct appropriation.....	41, 000. 00
United States Department of Agriculture, Bureau of Animal Industry, poultry work.....	500. 00
United States Department of Agriculture, Bureau of Animal Industry, dairy work.....	2, 620. 00
United States Department of Agriculture, Bureau of Animal Industry, pig-club work.....	1, 800. 00
Final allotment from college funds.....	11, 760. 21
Appropriations by boards of county commissioners, boards of education, commercial clubs, and others....	43, 276. 22
Total	143, 467. 81

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, rural sanitation, boys' clubs, extension schools, printing, and poultry clubs. Funds of the United States Department of Agriculture were used in the following projects: Administration, county agents, home economics, boys' clubs, pig clubs, dairying, and poultry clubs. State funds only were used in the project "agriculture for schools."

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—The demand for the services of the county agent in Oklahoma has increased until he is taxed to the limit to comply with all the requests he receives with a view to rendering service to the greatest possible number of people. Organization work has been pushed throughout the State. Farmers' clubs, 140 of which were organized in Oklahoma in 1916, with a membership of 5,802, aided in the dissemination of agricultural information. The county agents work with the adult farmer and the boys' clubs is closely correlated with that of the woman agent in her work with the farm girls and women and the farm home. Close cooperation exists between these various branches of the work.

A general idea of the volume of work done by the county agents of Oklahoma may be gained by referring to the tabulated statement of field crops demonstrated.

Some results of field-crop demonstrations in Oklahoma, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	662	491	8,073	² 34.1	2,163	23,572	² 27.0	2,825	31,645
Kafir.....	192	124	1,601	² 26.7	296	5,995	² 22.1	488	7,596
Cotton.....	462	311	5,916	³ 821.0	1,360	14,702	³ 636.0	1,822	20,618
Wheat.....	141	103	4,219	² 18.4	635	28,168	² 15.1	776	32,387
Oats.....	145	98	2,509	² 35.5	674	8,633	² 33.3	819	11,442
Alfalfa.....	80	57	1,353	⁴ 3.69	286	4,472	⁴ 2.86	366	5,825
Sweet clover.....	136	89	762	⁴ 2.21	284	1,452	⁴ 2.0	420	2,214
Sudan grass.....	144	81	792	⁴ 3.53	269	1,298	⁴ 2.85	413	2,090
Cowpeas.....	81	60	995	⁵ 9.6 ⁶ 1.75	72	673	⁵ 6.25 ⁶ .75	153	1,668
Peanuts.....	218	105	1,461	⁵ 37.8 ⁶ 1.55	378	3,630	⁵ 30.5 ⁶ 1.31	596	5,091
Other miscellaneous hay and forage crops.	37	21	533	.....	157	775	.....	194	1,308
Other miscellaneous crops.....	162	119	1,137	.....	115	1,447	.....	277	2,584
Total.....	2,460	1,659	29,351	.....	6,689	94,817	.....	9,149	124,168

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds of seed cotton.

⁴ Tons.

⁵ Bushels of seed.

⁶ Tons of hay.

It will be seen that 9,149 farmers followed demonstration methods on 124,168 acres in the various crops listed. The yields per acre as shown run well above the State average. The number of demonstrators, the acreage, and the yield comprise only a small portion of data available on these crops. The county agent is concerned not only in the matter of production but in every phase of farm management which affects the earning power and farm life of the farmer. There were 855 orchards inspected, pruned, sprayed, wormed, or planted with the assistance of the county agents, involving a total of 86,736 fruit trees. Agents actually treated 2,959 trees to demonstrate how the work should be done.

Live stock is receiving its share of attention throughout the State. There was brought in during the year, due to the agents' influence, 1,163 pure-bred and 2,888 grade dairy cattle, 3,798 pure-bred and 4,940 beef cattle, 895 pure-bred and 6,533 grade sheep and goats, 5,192 pure-bred hogs, and 336 horses and mares. There were 785 poultry demonstrations, with 15,106 fowls; 87 dairy demonstrations, with 957 cows; and 459 feeding demonstrations, with 13,791 animals. Farmers were induced to treat for diseases and pests 339,242 cattle, 112,431 hogs (for cholera, 69,023), 846 sheep, and 726 horses. Agents actually treated, including 44,335 hogs for cholera, 80,947. There were 535 new silos built in the State this year, 177 of which were built at the suggestion and with the assistance of the county agents; dipping vats to the number of 74 were erected for use in the control and eradication of certain diseases and insect pests. There were 959 farmers advised as to the proper use of commercial fertilizers and 2,368 farmers were instructed in the better care of farm manure, 106 of whom were induced to provide sheds to prevent leaching during heavy rains.

The great variety of things done with the agents' assistance and advice is indicated by the partial list of farm and farmstead improvements brought about in Oklahoma in 1916 by county agents. There were 635 buildings erected and the county agent was called upon to furnish plans for 280 of these; 1,218 buildings were improved; 496 farm buildings were painted or whitewashed; 41 home water systems and 58 home lighting systems were installed; sanitary conditions were improved on 1,413 farms; 2,798 homes were screened against flies and mosquitoes; 98 sanitary privies were erected; 204 farmers adopted a systematic crop rotation, involving 11,915 acres; 776 new pastures were established and 124 old ones, with an acreage of 5,284, were renovated; 144 farmers were induced to better drain by tile or ditch 14,630 acres; 1,807 acres were cleared of stumps; 5,644 acres were terraced; 5,479 home gardens were established; 192 road-improving demonstrations were assisted in, resulting in 1,262 miles of improved roads; 89 farmers planted cover crops to be turned under for soil-improvement purposes; and several thousand imple-

ments of improved labor-saving types were bought at the agents' suggestion.

Over 400,000 miles were traveled by agents in visiting demonstrators; 1,040 field meetings, with an aggregate attendance of 15,369, were held. Hundreds of farms have been induced to keep a cost record of their crops, so that they may know from which the profit or loss arises. Approximately 6,000 farmers in the State have been shown the benefit of and are practicing fall plowing; 7,317 farmers are selecting their own seed; there are 1,110 demonstration farmers growing improved seed for sale; the production of the home supply of sirup from sugar cane or sorghum is being practiced by 1,067 demonstrators. These various activities are all more or less closely related to the problem of producing all the home supplies on the farm, which is being emphasized by the county agents.

Extension work for negroes was carried on in cooperation with the Negro Agricultural and Normal University at Langston. The cost was divided equally between the extension division and the State board of education. One colored man agent and one colored woman agent were employed. The results of their work are included in the reports for county agent and home-demonstration work.

There was expended under this project for this fiscal year the sum of \$93,365.87.

Boys' club work.—The boys' clubs made good progress during the year. They were supervised by a boys' club agent, a pig-club agent, and an agent working out from the Negro Agricultural and Normal University, who supervised farm-makers' clubs. These agents and the county agents cooperating with the school authorities performed the field work. In all club activities 9,579 boys were enrolled. Boys doing poultry work reported under girls' clubs. The enrollment by clubs was as follows: Corn, 2,738; grain sorghum, 1,119; cotton, 1,236; peanuts, 912; rotation, 353; pigs, 2,058; baby beef, 12; poultry, 776; farm makers among negro children, 375. Complete reports were made by 602 corn-club members growing 1 acre each; they grew 21,598 bushels, averaging 35.87 bushels per acre, at an average cost of thirty-nine and a fraction cents per bushel. The average yield for the State is reported to be 13.5 bushels per acre. Three boys made 100 or more bushels on their acres. In grain-sorghum clubs there were 165 boys demonstrating on as many acres, who produced a total of 4,530 bushels of grain, or an average of 27.4 bushels per acre, at a cost of 46 cents per bushel. The average yield of the State for such grains, as shown by the United States Department of Agriculture, was 7.2 bushels per acre. Of the 465 boys reporting in the cotton clubs, 298 made complete reports. There were 280,688 pounds of seed cotton produced on these 298 acres.

This was an average of 941.9 pounds of seed cotton per acre, at a cost of 2.9 cents per pound, or an average of 376.3 pounds of lint per acre, at a cost of 7.3 cents per pound. The average yield of seed cotton in the State, as shown by the United States Department of Agriculture, was 480 pounds per acre. Three boys made above 2,000 pounds of seed cotton each on their acre plats. Of the 178 boys reporting in the peanut club, only 91 made complete reports. These 91 boys grew 3,356 bushels on their acres. The average yield per acre was 36.8 bushels, at an average cost of 45 cents per bushel. The average yield of peanuts per acre, as shown by county agents, was 27 bushels. Four boys made from 80 to 100 bushels of peanuts on their acres.

The pig-club work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The specialist in charge conducted his work chiefly through the county agents. There was an enrollment in the pig clubs of 2,058 members, of which 630 sent in reports; 196 members made complete reports. In the fattening phase of the pig-club work there was an average gain per pig during the contest of 154.7 pounds, at a cost of 6.6 cents per pound. In the breeding phase 618 pigs were farrowed, there being an average of 7.4 pigs per litter. The average profit per club member was \$38.53.

The baby-beef club was undertaken as an experiment. Twelve boys were enrolled and seven reported. The average profit per member was \$22.96. This work also was carried on in cooperation with the Bureau of Animal Industry.

In the farm-makers' club (negro boys) 37 members reported. Twenty-two of them grew 889 bushels of corn, an average of 40 bushels per acre, at an average cost of 42 cents per bushel. Fifteen grew 16,553 pounds of seed cotton on their acres, an average of 1,103.5 pounds per acre, at an average cost of 2.3 cents per pound. The average profit per club member was \$36.06.

There was expended under this project for this fiscal year the sum of \$4,483.67.

Home demonstration and girls' club work.—The home demonstration and girls' club work was organized in 22 counties with a woman county agent in charge. The women county agents were employed for an average of a little less than 11 months per year; they were paid \$75 per month, one-half of which was by local contributions for that purpose. Only a few of them had an expense allowance for travel, except for trips in attendance at meetings for conference called by the State agent with the approval of the director.

During the past year girls were enrolled in the various clubs as follows: Canning, 1,885; poultry, 2,251; and better bread, 2,149,

making a total of 6,285. In the canning clubs girls reported having put up 7,867 containers of tomatoes and other garden and farm products. The total value of all products raised and sold by them amounted to \$7,080.98. Five hundred and four canning-club girls made exhibits at the various county and State fairs, winning premiums to the value of \$873.93. In addition to this, 47 girls won in the county contests scholarships to the State fair school. In the better-bread club 274 girls made exhibits at the county and State fairs, winning a total of \$234.73.

The Oklahoma Bankers' Association awarded five scholarships at the agricultural and mechanical college in the boys' and girls' club work. These premiums have again been offered for work next year. The State board of agriculture has given financial encouragement to this work in the way of scholarships to the State fair school and at the agricultural and mechanical college. The State board of education has recognized the value of the girls' club work by excusing all eighth-grade club members from examination in home economics and agriculture who make a grade in their club work of not less than 85 per cent.

In the home-demonstration work for farm women there was a total enrollment of 737, of whom 490 were active workers. Most of these women were organized into clubs. In three counties the clubs were federated into county organizations. There are now 52 rural women's clubs, with a total membership of 915.

Through the efforts of extension workers in home economics there were installed in rural homes 54 fireless cookers, 85 iceless refrigerators, 223 flytraps, 31 water systems, 18 kitchen cabinets, and 71 other conveniences, and 171 houses were screened. In addition, there was a total of 103 dairy appliances, such as barrel churns, butter workers, etc., installed. One hundred and eighty-nine farm women were enrolled in special poultry work and 173 pure-bred birds for breeding purposes were purchased.

Through the efforts of the home-demonstration agents the women living in the rural districts made 61 demonstrations in bread making, 77 in vegetable cookery, and 47 in meat cookery and the use of the fireless cooker. The agents themselves gave 100 canning demonstrations, 64 with fireless cookers, 48 in bread making, 22 with iceless refrigerators, 44 of egg candling and sorting, and 59 in vegetable cookery.

In the poultry work there were 506 women and girls enrolled as demonstrators; 147 of them met the minimum requirements and 162 had charge of the entire home flock. These demonstrators purchased 527 pure-bred males and 158 purchased pure-bred birds other than males. The number of chickens raised by these demonstrators was

18,328. Eggs and poultry for market and birds as breeders were sold to the value of \$9,349.06.

A good many garden demonstrators were enrolled, and these women canned 63,682 containers of fruits and vegetables, valued at \$9,759.90. All these products were canned for home use.

The canning club and better-bread club girls of the State made 99 cup towels, 105 holders, 406 caps, 410 aprons, and 189 dresses as accessories to be used in their club activities.

There was expended under this project for this fiscal year the sum of \$39,975.14.

Poultry-club work.—Poultry-club work was carried on in co-operation with the Bureau of Animal Industry, United States Department of Agriculture. The specialist in charge conducted his work chiefly through the women agents in counties where there were such. He reports the organization of 170 poultry clubs, with an enrollment of 2,302 members; 429 members report 17,691 eggs set, 13,227 chicks hatched, and 7,305 of them raised to maturity; 92 fowls were sold for breeding purposes and \$221.78 received by members for market poultry sold; 319 club members made exhibits at fairs, 17 dozens of eggs and 1,036 fowls were shown; \$1,563 cash prizes were awarded; 6 poultry associations and 1 poultry marketing association were organized; 121 meetings were held, with an attendance of 8,305 people.

Extension schools.—Extension schools were carried on in counties where agents were located, a week being spent in each county. Two-day meetings were held in three rural communities in each county. These communities were selected by reason of the county agent having his best and most successful work in them. All arrangements and the program were in charge of the county agents and the work was adapted to the particular interest of each locality. Extension schools were held one week each in 32 counties; 58 of them were held in rural schoolhouses and 81 in small towns. A total of 31,734 different individuals attended. The cost of these schools, not including the salary and expenses of county and district agents, was \$4,540.42, or a cost of 14 cents each per individual reached.

Rural sanitation.—The specialist in rural sanitation visited 41 agents and held 228 meetings, with an attendance of 45,316 people. Efforts were made to have corrected the most glaring defects in sanitation in homes and schoolhouses in the rural districts. Good drinking water, sanitary toilets, fly and mosquito eradication, and prevention of diseases were subjects most effectively taught by illustrated lectures. Great interest is being shown, especially in communities that have suffered from typhoid fever, malaria, and other preventable diseases.

OTHER PROJECTS.

Dairying.—Work in dairying has been carried on in the tick-freed area in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The activities of the specialists in charge of this work were along the lines of cooperative cream-marketing associations, cow-testing associations, cooperative creamery associations, and improved breeding associations.

Agriculture for schools.—This work is to encourage teaching of practical agriculture in the county schools. It was supported entirely from State funds. During the year the specialists in charge of this work addressed 15,764 teachers and 63,193 other people.

OUTLOOK.

The extension work is becoming more and more popular as the people become familiar with the work being done. Sentiment has arisen in favor of raising or removing entirely the limit of appropriations which county commissioners' courts may make for agricultural extension work. The county and women agents are being recognized as regular county officials. The demand for better qualified agents is increasing faster than the available funds with which to employ them. The efficient county agents find opportunities for service so great that many of them can not meet nearly all the demands made upon them, and the advisability of putting on assistant county agents in some cases is being considered. The supervisory force is to be strengthened by the appointment of another district agent, making five in all. If the present rate of increase is continued, it will be but a short time until there will be a county agent in each of the 77 counties in the State. Harmony exists among all extension workers, and excellent teamwork is being done by specialists, the agents in the field, and the other divisions of the college. More and more the legislature and other State officials are recognizing the county agents and other extension workers as an effective agency for the upbuilding of the agricultural interest of the State well worthy of their encouragement and support. The outlook for the work the coming year promises to justify this confidence and support.

SOUTH CAROLINA.

Division of Extension, Clemson Agricultural College of South Carolina,
Clemson College.

W. W. LONG, *Director.*

Organization and administration.—The organization of the extension division of the State college of agriculture in South Carolina

was the same as the previous year, except for a few minor changes in personnel. The director of extension work is in charge of all extension activities and has the work outlined under 11 separate projects with a leader in charge of each who reports directly to the director. The leader of each project is responsible for the work undertaken in his division. The two principal lines of work undertaken are the county-agent work and the home-demonstration work for women and girls. The specialists in all other projects correlate their work with the work of the men and women county agents and all work undertaken is carried on through them. All employees of the extension division render weekly field reports showing time employed, character of work performed, etc. These reports are submitted to the director of extension and are filed in his office. The organization consisted of a director and State agent, an assistant State agent, an assistant in charge of boys' club work, 2 assistants in charge of home demonstration and girls' club work, 3 district agents, 51 county agents, 30 women agents, 6 negro agents, and 8 full-time specialists. This was an increase during the year of six women agents. There were five part-time specialists employed in South Carolina during the fiscal year 1915-16. Cordial relations exist between the extension division and the State department of public instruction, especially in the carrying on of boys' and girls' club work. Excellent support and cooperation is given the extension division by the other departments of the college and the experiment-station workers.

Publications.—There were published during the fiscal year 1915-16, 14 bulletins and 1 circular. The material for extension publications was furnished by the specialists of the extension division. Publications are distributed through the county agents from a mailing list kept in the extension office. This mailing list is made up from lists of farmers sent in by county agents and from farmers who write to the extension office requesting that their names be placed on the mailing list. Approximately 75,000 bulletins were distributed during the year. The Weekly News Notes were issued during the year and mailed to about 1,160 names of farmers, cream-route patrons, agricultural workers, bankers, editors, etc. Fifty issues of the Weekly News Notes were sent out, with an average of 10 timely articles of from 250 to 300 words to the issue. A majority of the papers of the State used these articles regularly. During the year 3 free agricultural plate sheets were sent to 58 South Carolina papers. A large number of poster bulletins, advising farmers to raise cattle, were sent to county agents for distribution.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal.....	\$25, 691. 15
Smith-Lever, State.....	15, 691. 15
United States Department of Agriculture, farmers' cooperative demonstration work.....	40, 800. 00
United States Department of Agriculture, Bureau of Animal Industry.....	12, 940. 00
United States Department of Agriculture, Office of Markets.....	1, 500. 00
County appropriations.....	21, 441. 95
College appropriations.....	20, 050. 00
Total.....	138, 114. 25

Smith-Lever funds were used in support of the following projects: Administration, printing, county agents, home demonstration and girls' club work, negro agents, live stock, dairying, agronomy, horticulture, poultry, marketing, mill village, and mill village club work for boys. Funds from the United States Department of Agriculture were used in support of the following projects: Administration, county agents, home demonstration and girls' club work, dairying, poultry clubs, marketing, live stock, and mill village club work for boys.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—The director of extension in South Carolina is also the State agent. There is an assistant State agent who has immediate charge of the county-agent work. There was a county agent in each county except one, and there were two county agents in each of three counties. About 80 per cent of the county agents are graduates of agricultural colleges, and all are men of broad practical experience on the farm. The work accomplished during the year has been very satisfactory, the following being some of the results: Regular weekly or monthly visits were made to 9,919 farmers, directing in the aggregate the operations on 362,927 acres in demonstration crops of all kinds. The owners of these farms saved 622,166 tons of stable manure and used 23,044 tons of lime; 6,171 farmers used home-mixed fertilizers; 10,745 tons of fertilizer have been purchased cooperatively; 949 hog pastures were established; 2,678 farmers were induced to plant wheat for the first time, and 564 home orchards, of 71,413 trees, were planted due to the agents' influence; 58½ per cent of the demonstrators and cooperators produced their own home supplies; 101 organizations were formed, with a membership of 3,181. County agents report having made 50,860 visits to demonstrators and 1,695 visits to public schools, held 1,343 meetings, distributed 37,354 bulletins, prepared 3,508 articles

for publication, and wrote 21,064 official letters. The following table shows other crop work performed by the agents during the year:

Some results of field-crop demonstrations in South Carolina, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	1,282	986	16,125	² 27.9	765	11,382	² 26.0	2,047	27,507
Cotton.....	1,030	857	19,025	³ 997.0	706	14,528	⁴ 792.0	1,736	32,553
Tobacco.....	35	22	239	⁴ 628.0	.....	.....	.....	35	239
Oats.....	608	550	9,367	² 31.5	463	6,086	² 24.7	1,071	15,453
Rye.....	496	416	4,910	² 12.9	396	2,870	² 11.5	892	7,780
Wheat.....	441	380	2,639	² 15.9	318	2,473	² 12.5	759	5,112
Alfalfa.....	483	459	4,036	⁵ 2. $\frac{13}{8}$	62	144	.....	545	4,180
Crimson clover.....	586	577	9,579	⁵ 1.5	723	3,684	.....	1,309	13,263
Bur clover.....	432	318	1,522	.....	235	394	.....	667	1,916
Vetch and oats.....	330	324	2,580	⁵ 2.0	58	298	⁵ 1.5	388	2,878
Miscellaneous hay and forage crops.....	237	235	1,888	.....	13	32	.....	250	1,920
Summer legumes.....	1,719	926	42,646	.....	1,353	26,393	.....	3,072	69,039
Irish potatoes.....	73	.....	908	² 120.0	.....	.....	.....	73	908
Sweet potatoes.....	116	.....	236	² 161.0	.....	.....	.....	116	236
Total.....	7,868	6,060	115,700	.....	5,092	68,284	.....	12,960	183,984

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.

² Bushels.

³ Pounds of seed cotton.

⁴ Pounds.

⁵ Tons.

The county agents performed excellent service throughout the State in the improvement of live stock. Due to the influence of their work there was brought into the State pure-blood and grade live stock as follows: Two hundred and five horses and mules, 1,000 dairy cattle, 1,244 beef cattle, 1,592 hogs, and 81 sheep and goats. There were 52 demonstrations in dairy work, with 307 cows; 59 demonstrations in cattle feeding, with 2,086 head of beef cattle; 213 demonstrations in hog raising, with 975 hogs; and 35 poultry demonstrations, with 15,322 birds. Farmers were assisted in treating for live-stock diseases 48,222 cattle, 26,355 hogs (for cholera, 14,240), and 435 horses. The agents themselves actually treated 12,878 hogs for cholera and 3,483 head of live stock for other diseases.

There was expended under this project for this fiscal year the sum of \$68,186.61.

The boys' club work was carried on as a part of the regular work of the county agent. It was supervised by a State agent of boys' club work. The field work was performed by this agent and the county agents cooperating with school authorities, business men, and others. Two thousand one hundred and eleven boys were enrolled in club activities in South Carolina, classified as follows: Corn clubs, 1,063; pig clubs, 1,048.

Corn clubs were organized in 40 of the 45 counties of the State. Reports were secured from 37 of these counties. Reports were made

by 488 members. These boys grew on their acres 20,797 bushels of corn, averaging 42.6 bushels per acre. The average cost per bushel was 44.7 cents. On July 13-14 practically the entire State was visited by one of the most disastrous storms in its history, followed by a series of cloudbursts and heavy rains, destroying thousands of acres of crops. Fully 25 per cent of the corn boys had their crops of corn completely destroyed, which accounts for many boys not reporting and the greatly reduced showing made. Clubs were organized with the county as the unit. However, in some cases local clubs were organized with the school as the unit. The county agent was recognized as the leader in his county in the boys' club work. Quite a number of teachers and many county superintendents of education rendered valuable assistance in organizing and conducting the club work in their respective communities.

Pig clubs were organized in 36 counties and 351 boys made complete reports. No reports were received from 8 counties. Two hundred and ninety-one boys grew and fattened pigs. These pigs in the beginning were valued at \$1,735.30, and at the time of reporting at \$7,539.13. The cost of growing and fattening the pigs was \$3,020.24. Deducting the first cost of the pigs and the cost of growing and fattening leaves a net profit of \$2,783.49, or a net profit of \$9.56 per pig. Fifty-eight boys reporting entered the breeding phase. They raised 265 pigs. The value of the 58 sows in the beginning was \$2,028.31; the value of the sows and pigs at the time of reporting was \$4,668.12. The cost of growing sows and pigs was \$908.36, or an average cost of \$15.66 for each sow and litter.

Clemson College offered scholarships to an agricultural short course of one month to the two club members in each county in the State who should make the highest average under the rules. Scholarships were awarded to 76 boys representing 38 counties to this short course, which was held from July 31 to August 29. These scholarships carried with them free board, laundry, and tuition while at college. Several other short courses of from one to three days were held for club members in different counties.

Several hundred community and county fairs were held in the State, at which the boys' club work was always one of the most attractive features. Liberal prizes were provided for the work.

There was expended in the boys' club work during the past fiscal year \$1,976.60.

Home demonstration and girls' club work.—This work is carried on in cooperation with Winthrop College, the headquarters of the work being at the college. Thirty-one counties are organized for the work, an increase of seven over the previous year. The supervising force consists of a State agent, assistant State agent, one special assistant, and a State agent in poultry work. Twenty-three county

agents are employed for 11 months and 9 for 10 months of the year. One county has an assistant county agent. During the month of January the agents were assembled at Winthrop College for instruction and study, the outline for the year's work being carefully developed.

In girls' club work there were enrolled 295 canning clubs, with a membership of 2,338; 128 bread clubs, with a membership of 1,964; and 69 poultry clubs, with a membership of 628. From tenth-acre gardens there were reported 800,531 pounds of tomatoes, 3,650 pounds of beans, and 103,561 pounds of peppers. The total number of containers packed from tenth-acre gardens was 176,320, valued at \$55,582.52; from farm and orchard, 46,458 containers.

County short courses from three to five days in length have been held in every county, 1,488 girls being entertained in homes or in dormitories of local schools. In addition, the State short course for girls was held at Winthrop College and attended by 76 prize-winning girls, representing each county organized. There are now more than 40 students in attendance at Winthrop College who were former club members, many of whom received their first impetus to go to college from attending a short course.

During the year 201 home-demonstration clubs have been organized among women, with an enrollment of 4,924, 3,444 of whom have done active work. A systematic three-year course of study has been made involving work for each month. Each month a lesson on one of the topics selected for study and demonstration is published by Winthrop College. Under the direction of the county agents, women have produced 173,985 containers of fruits and vegetables, valued at \$29,778.06. Reports show that 1,860 winter gardens are being grown by club members. The demonstrations made by women in their homes include the making and installing of the following conveniences: Fireless cookers, 623; iceless refrigerators, 385; wheel trays, 110; dairy conveniences, 107; home waterworks, 78; flytraps, 411; homes screened, 372; and miscellaneous, 141. Cheese-making demonstrations have been given in 310 homes.

As an outgrowth of home-demonstration clubs, great interest has been taken in community fairs. For example, in Clarendon County there were seven community fairs, the outgrowth of the work of seven women's clubs. County agents have helped to organize and judge exhibits in 90 community fairs, which are inspiring educational and social centers. Following these, county fairs or county exhibits were held. At the State fair a notable educational exhibit consisting of 16 separate booths was given, each representing a different phase of the work. Two county agents were in charge of each booth to explain the work and give information.

Notable improvement has been made in standardizing products, and the ease of securing markets depends almost directly upon standardization and high quality. Many merchants are purchasing 4-H brand products.

There was expended under this project for this fiscal year the sum of \$39,975.14.

Poultry clubs.—Poultry clubs were organized in 15 counties. There were 68 clubs, with an enrollment of 763 members. Reports were received from 87 members, giving the following results: Two thousand six hundred and ninety-three eggs set, 1,824 chicks hatched, 1,591 chicks raised. The total value of stock on hand and equipment, together with total receipts and prizes won, amounted to \$613.79, the feed and labor cost being \$161.95. Twelve exhibits were held, wherein 512 fowls and 72 dozen eggs were exhibited by 112 members. The cash prizes won by these exhibits amounted to \$303.25. This work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture.

Negro work.—The demonstration work by negro agents was under the supervision of the State Agricultural and Mechanical College for Negroes, at Orangeburg. It was deemed advisable to confine the operations of the agents to negro landowners entirely, leaving negro tenants to be assisted by white agents in cooperation with white farmers. Seven negro agents were employed, but during the year the number was reduced to five. These agents work along the same lines as the white county agents; they organized among the negro boys and girls corn clubs, pig clubs, canning clubs, and poultry clubs, under the title of "Farm-makers' clubs." The work of the negro agents during the year was very satisfactory to all concerned. They report having held 47 public meetings and 64 field meetings, to have visited 1,519 demonstrators, 388 club members, and 607 other farmers, and to have distributed 4,842 bulletins.

There was also one woman agent employed to carry on home demonstration and girls' club work among negro women and girls. A number of mothers' clubs and girls' canning clubs were organized. These women and girls were taught how to cook and do canning club and garden work.

Mill-village work for men and boys.—The specialist in charge of this work, with headquarters at Rock Hill, was under the direction of the director of extension at Clemson College and reported directly to him. The boys' club work was carried on in the mill villages. Eleven local agents, whose salaries were usually paid by the mills, were appointed to have immediate charge of the work, which was conducted at 19 mills. The chief work carried on was with gardens and improving the home surroundings of the operatives. Tomato, Irish potato, and sweet-potato clubs were organized; 4,000 peach

trees and grapevines were planted at the homes of the operatives, averaging three to each home.

Mill-village work for women and girls.—Through a cooperative agreement between the United States Department of Agriculture and Clemson and Winthrop Colleges, extension work in home economics and girls' club work was carried on during the past year among the families of the mill operatives in mill villages in South Carolina. An assistant was selected to carry on the work in each mill village, whose salary was usually paid by the mill president. Winthrop College was the headquarters of the specialist in charge of the work. Instruction in cooking and sewing for children and grown women was given. The work serves to make the village more sanitary and the people happier, better satisfied, and more thrifty. It has been inaugurated in 17 villages, reaching a population of 20,535, and is being handled by 14 community agents. The specialist in charge of this work assisted at 190 meetings with an attendance of 17,116, visited 214 individuals and 93 schools, and traveled in the discharge of his duties 8,959 miles by rail and 297 miles by other conveyances.

Live stock.—The live-stock work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture. The specialist in charge is the professor of animal husbandry in Clemson Agricultural College, and he devotes one-fifth of his time to this work. He is assisted by three full-time field specialists. The work consists of the erection of silos, planning of pastures, furnishing plans for barns, bringing in pure-bred live stock, and giving instruction in the feeding and care of beef cattle. Special demonstrations in planning pasture crops for hogs were carried on in a number of counties. The specialist in animal husbandry also gave assistance to the boys' pig-club work by preparing literature and assisting in holding meetings to instruct boys in the care and management of swine. Cooperative feeding and marketing of beef cattle was an important phase of the live-stock work. The plan was to select a number of farmers who had cattle to feed and give these cattle personal supervision until they were ready to sell, utilizing the feeding material on hand to the best advantage. Instructions were given and demonstrations held at regular periods in the feed lot. When the feeding period was ended a market-day sale was held, and 265 head of cattle were sold for \$13,538.59. There were also sold at this time 308 head of unfinished cattle through individual farmers. In one county a number of small farmers were induced to buy and feed cattle cooperatively, each farmer furnishing from 2 to 10 head of cattle. Feed was purchased cooperatively, the cattle put on feed at the same time, and finished for market and sold at the same time.

This line of work promises to grow into quite an extensive industry in the State.

The specialists report 51 cattle-feeding demonstrations of 1,432 cattle. Six cattle associations were organized. Personal assistance was given in the planning and construction of 7 barns and 6 silos; there were 27 cattle-pasture demonstrations and 581 hog-pasture demonstrations, with 10,017 hogs; 936 head of breeding cattle and 2,145 head of feeders were brought in; 103 pure-bred bulls were brought in, at an average cost of \$175 each; 1,047 hogs were brought in for breeding purposes. The specialist assisted in marketing 573 cattle and 249 hogs. Hearty assistance was given the specialists in their work by the county agents, who have shown active interest in the development of the live-stock work in their counties.

Dairy-extension work.—This work was carried on in cooperation with the Dairy Division of the Bureau of Animal Industry. Four specialists were employed in this project. Three creameries have been organized through the efforts of the extension workers. These creameries were financed and built by the business men under an agreement that all profits over 8 per cent on the stock investment should be returned to the patrons of the creameries. Through the efforts of the specialists and county agents cream routes have been worked up at all points contiguous to the dairy centers. As a rule the farmers patronizing these creameries have from two to five cows. Farmers are well pleased with their receipts for dairy products and are increasing their herds. Seventy-two silos, 27 barns, and 48 milk houses were constructed and 15 barns remodeled according to plans furnished by the specialists; 3 dairymen have been assisted in keeping milk records during the year, which resulted in better dairy stock being procured in these dairies; 15 new cream routes were organized; 114 dairy cattle were purchased, 86 of which were pure breeds; 7 associations of various kinds for the improvement of the dairy interests were organized; judging work was done at 6 county fairs, and a feeding demonstration was conducted at the State fair; 31 meetings were held, 20 of which were in cooperation with the county and home demonstration agents; and 22 circular letters on dairy problems were sent out during the year.

Markets and rural organization.—This work was carried on in cooperation with the Office of Markets and Rural Organization of the United States Department of Agriculture. The principal work done under this project was assisting the truckers of the State in securing better prices for their products through standardization of packages, grading of products, and by cooperative marketing. Especially good results were accomplished in marketing strawberries, asparagus, potatoes, and melons. The growers were organized into local shipping associations, and daily market quotations were fur-

nished by the Office of Markets and Rural Organization which enabled the associations to secure much better prices for their products than they otherwise could have done. Assistance was given these associations in the marketing of 492 cars of strawberries, 96 cars of asparagus, 73 cars of cantaloups, and 1,551 cars of watermelons.

The specialist in marketing reports having held 244 conferences with other specialists, county and home demonstration agents, dealers, brokers, commission merchants, and others, and assisted at 19 meetings for the purpose of giving instructions in proper methods of organization, cooperation, and standardization of products for the best results in marketing. The specialist also assisted in the purchase of 1,233 bushels of velvet beans to be used by the county agents in their demonstration work. Five hundred and sixty-four letters were written giving information and advice relative to the marketing of various farm products.

Agronomy.—There was one full-time specialist in charge of this work, which consisted mainly in carrying on breeding demonstrations with corn. The work was undertaken because good, pedigreed seed corn suitable to local conditions could not be found in the State. The county agents were of great help in furnishing information as to varieties of corn and in the selection of good men with suitable farms to do the work. The State was divided into 12 districts and 19 farmers selected to do the work. The breeding work is being done by the ear-to-row method, the object being to breed a better yielding variety for each district.

Horticulture.—There was one specialist in charge of this work, which consisted of establishing in each county in the State a limited number of demonstration fruit orchards. In addition, demonstrations were made in spraying, pruning, budding, and grafting, and advice was given in the proper care and handling of orchards. There were 252 orchard demonstrations, with a total of 39,254 trees. In addition, cooperative work was done with 363 orchards, aggregating 42,387 trees and vines. The growth and development of this work is due largely to the combined efforts of the specialists and county agents. Assistance was given several communities in purchasing community spray pumps. Special arrangements were made with 10 nurseries to furnish to planters high-grade trees and vines at very low prices, which resulted in a large aggregate saving.

OUTLOOK.

There is at this time a strong corps of extension workers in South Carolina, and their efficiency shows steady improvement from year to year. Local people are appreciating more fully the great importance of providing good salaries for county agents and of requir-

ing that they be the best trained men and women possible to be obtained. The results accomplished in the past year have been highly satisfactory, and the outlook indicates that still more satisfactory results will be accomplished during the coming year.

TENNESSEE.

Division of Extension, College of Agriculture, University of Tennessee,
Knoxville.

C. A. KEEFER, *Director*.

Organization and administration.—During the year 1916 there were no material changes in organization. At the close of the year the extension forces consisted of the director, assistant director, assistant director in charge of home demonstration and girls' club work, 6 district agents and 3 each for the county agent and woman's work, 46 county agents, 31 women agents, and 12 specialists. This is a gain over last year of 14 county agents, 8 women agents, 2 district agents, and 5 specialists. The clerical force was increased sufficiently to care for additional office work.

The director has charge of all the agricultural extension work in the State. The assistant director is chief adviser and administrative assistant of the director and has immediate charge of county agents and boys' club work. The assistant director in home-demonstration work has charge of all matters relating to women's work and is in direct charge of woman county agents. District agents have immediate charge of the county agents in their several districts. The field work of the specialists is planned with a view to aiding and supplementing the work of the county agent. In counties without agents the specialist undertakes demonstrations directly with the farmer. Much of the time of the specialists is given to aiding county agents in the field and public meetings and organization work. Specialists have the advice and cooperation of the professors of the college of agriculture in their several lines, thus aligning the work with the results of the experiment station research and the instruction given in the university. Specialists employed in cooperation with the bureaus of the United States Department of Agriculture and with the State department of agriculture plan their work in conference with the responsible officers of the cooperative agencies. In all cases such cooperation has proven most satisfactory to the extension division. Regular meetings of the administrative officers and specialists are held, at which plans and policies are discussed and itineraries outlined.

The State board of education has withdrawn its assistance in financing county agents, but county high-school boards and county

boards of education have made provision for support for county and women agents, and thus the work has gone on without interruption. County superintendents of schools and teachers have been active in assisting in the organization and supervision of boys' and girls' club work. Business organizations have aided the work by giving generously for prizes in boys' and girls' club competitions. The State department of agriculture continues in active cooperation with the extension division, it being the policy of the commissioner to refer all educational phases of his department to this division. Specialists in animal husbandry, dairying, poultry, marketing, and rural organization are employed in cooperation with the United States Department of Agriculture.

Publications.—During the year 9 bulletins were published aggregating 113 pages, with a total edition of 90,000 copies. In addition to these publications, a number of circulars, circular letters, and plate material which was furnished to 100 weekly newspapers throughout the State were prepared. Material for these publications was collected and prepared by the specialists and other members of the extension division with the assistance of members of the experiment station and college staffs. The publications are distributed from the office of the extension division to lists of demonstrators and others sent in by the agents, and to other citizens of the State who request them. A regular classified mailing list is being made up for all the publications of the division.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$31, 202. 00
Smith-Lever, State.....	21, 202. 00
United States Department of Agriculture, farmers' cooperative demonstration work.....	39, 000. 00
United States Department of Agriculture, Bureau of Animal Industry.....	8, 500. 00
United States Department of Agriculture, Bureau of Forestry	700. 00
United States Department of Agriculture, Bureau of Markets.....	1, 187. 50
County appropriations	33, 674. 60
Total	135, 466. 10

Smith-Lever funds were used in support of the following projects: Administration, printing, county agents, home economics, poultry clubs, agronomy, animal husbandry, dairying, dairying in tick-freed area, woodlots, marketing, movable schools, and hybrid grains. United States Department of Agriculture funds were used in the following projects: Administration, county agents, home economics,

poultry clubs, agronomy, animal husbandry, dairying, dairying in tick-freed area, woodlots, and marketing.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—At the close of the fiscal year the county-agent work was organized in 46 counties. The growth of the work is proof of increased interest among farmers and a more liberal support of quorum courts, county school boards, and others to help pay salaries of county agents. Seventeen agents taught five days a week for three months in the agricultural high schools in their counties. One day each week was devoted to field work. During this period only one-sixth of the agents' salaries was paid from extension funds. As soon as possible it is planned to employ agricultural teachers for each of these schools. This will allow the agent to devote the entire 12 months to extension work. The following is a summary of the demonstrations and miscellaneous work of the county agents: There were 280 demonstrations in cotton, with 3,066 acres, which made an average yield of 1,183.3 pounds of seed cotton per acre. This was an increase of 421.7 pounds above the average yield. There were 1,028 demonstrations in corn, with 9,517 acres, which made an average yield of 43.02 bushels per acre. This was an increase over the average of 13.65 bushels. One thousand one hundred farmers field selected seed corn. There were 107 demonstrations in wheat, oats, barley, and rye, which gave increased yields as compared with near-by fields in these crops. Recognizing the necessity for feed and pasture crops in connection with live-stock work, demonstrations were carried on in the leading legumes and forage crops. There were 99 demonstrations in red clover, 276 in crimson clover, 191 in alfalfa, and 24 with vetch, Japan clover, and bur clover. Nearly every demonstration farm has a meadow of some grass mixture for hay. It is estimated that there were more than 30,000 acres in the various legumes and grasses under the supervision of the agents. There were 407 demonstrations in soy beans, cowpeas, and peanuts; 95 home-orchard demonstrations. Assistance in pruning and spraying was given on 1,001 orchards, with 43,742 trees. The following pure-bred live stock was brought into the State through influence of the agents: One hundred and sixty-four dairy cattle, 589 beef cattle, and 190 hogs. Fifteen thousand hogs were treated for cholera and 2,200 cattle for blackleg; 170 silos constructed and 14,957 tons of lime used; 29 farmers' clubs organized. Assistance on 103 new buildings, 50 plans furnished for new buildings, 46 water systems and 26 lighting systems installed, 1,570 homes screened, 2,044 flytraps placed, 135 crop rotations and 115 pastures

started, 32 drainage systems established, 110 removed stumps, 46 farms terraced, 126 home gardens started, and more than 10,000 improved farm implements were purchased. The agents made 35,609 visits to demonstration farmers, club members, and others and traveled 192,880 miles; held 1,087 farmers' meetings, with total attendance of 73,254, and 542 field meetings, with attendance of 9,727.

The boys' club work was supervised by the assistant director. The district agents and county agents, cooperating with schools, business men, and others, organized clubs, enrolled boys, and looked after the field work. In the corn clubs 1,761 boys, each growing 1 acre of corn, were enrolled, 931 members reporting. The average yield for those reporting was 51.57 bushels per acre, at an average cost of 37.5 cents per bushel.

The following sum was expended on this project: County agents, \$64,762.95.

Home demonstration and girls' club work.—In the home-demonstration work for the past year the State agent was assisted by three district agents for the sections of east, middle, and west Tennessee and three home-economics specialists. Thirty-two county agents were employed, the average term of service being 10½ months, 10 of these being employed for 12 months. This is an increase of 6 agents over the preceding year.

The total enrollment of girls in canning clubs was 3,551, of whom 1,663 reported. These girls put up a total of 326,146 containers of fruit and vegetables from their one-tenth acre gardens and 65,779 containers from the farm and orchard. The total value of these products was \$47,109.55. They made 1,684 caps and aprons, 66 dresses, 184 towels, and 245 holders for use in the demonstrations. In the poultry clubs there were 1,366 girls. One hundred and forty-seven girls made demonstrations in winter gardens, 1,262 made demonstrations in cooking-club products, and 723 made bread demonstrations. Many of the girls' clubs bought cans and other supplies cooperatively and did excellent teamwork. Ninety-eight clubs held regular meetings, having a total of 1,147 meetings during the year, with a total attendance of 37,205.

In the women's work 1,409 demonstrators were enrolled, with 65 organized clubs. For the instruction of these women the agents gave 692 demonstrations in cookery, sewing, and millinery. Under the directions of agents the women in their homes made 157 demonstrations in bread making, 92 in vegetable cookery, and 167 in meat cookery. A total of 1,001 labor-saving devices were made or installed in homes, including 235 fireless cookers, 42 iceless refrigerators, 419 flytraps, 31 water systems, 41 kitchen cabinets, 21 ironing boards, and 27 shower baths. In addition, a total of 334 labor-saving devices were purchased and 3 houses planned and 3 others remodeled under

the advice of county agents. The total number of containers of canned products put up by women under demonstration methods was 65,918, valued at \$8,094.85. Nine rest rooms were established for rural women.

Club women, business men, and bankers gave fine cooperation. In several instances bankers financed the work in counties, furnished automobiles for the county agents, lent money to club members for purchasing supplies, and assisted poultry-club work. The women's clubs also aided the girls in marketing products.

Movable schools, from three to six days' duration, were conducted in a number of counties. Three counties held successful camp short courses for girls. One-day rallies for boys and girls and community meetings for men and women were held in many counties. Three district farmers' institutes in east, middle, and west Tennessee held annual three-day sessions for women, with a membership of more than 1,200.

The exhibits in community, county, district, and State fairs showed a marked improvement in standardization and quality of products exhibited by girls and women. Fifty score cards furnished by the extension division helped to set a standard, and frequent public judging was an educational feature.

During the year work was done among negro women and girls under the supervision of two negro woman district agents, who covered considerable territory and have as their primary object the organization of clubs for negro women and girls and teaching them better methods of home making, and also giving instruction in canning and the preparation of foods.

There was expended on this project \$27,258.10.

Agronomy.—Under the agronomy project are employed two specialists to assist the county agents and the farmers in the State by giving information as to the best methods of growing field crops, the treatment of soils, use of fertilizers, etc. The county agents were assisted by the specialists in conducting 50 meetings of farmers. They delivered lectures and demonstrations on farm crops and soil management at 20 movable schools, and also lectured on hog pastures at meetings held by the State veterinarian in his work of hog-cholera control. Elaborate demonstrations in the use of ground limestone for legume crops have been conducted. In 1915 25 cars of ground limestone were used under the direction of the extension division by 125 farmers on clover, alfalfa, and rye crops in five counties in western Tennessee. The success of this work encouraged the use of over 100 cars for similar demonstrations in 21 counties in 1916. This work is placed in the hands of the county agents in all counties having agents. Much time has been devoted to the organization of

rural-community clubs and providing programs for such organizations.

Poultry clubs.—A specialist in poultry-club work was appointed January 1, 1916. The work was organized only in counties where a woman agent had been working for more than a year. Eighty-four clubs were organized in 12 counties, with a total membership of 1,363. These clubs were under the immediate supervision of the woman agents. Two community breeding associations were organized during the year.

Extension schools and farmers' meetings.—Twenty-four extension schools, with a total attendance of 3,572, were held during the year. These schools were each of a week's duration and were held at county seats, rural high schools, and other community centers. Instruction was given at these schools by the specialists of the division with the active assistance of the county agents, who made the preliminary arrangements. Farmers' institutes were held at Jackson, Nashville, and Knoxville in cooperation with the State department of agriculture, with an aggregate attendance of 7,000. The delegates to these institutes were prorated to the rural population of the several counties and were named at mass meetings of farmers called for the purpose or by committees selected at such meetings. The attendance at the institute was thus composed of representative men and women from all parts of the State.

Woodlot management.—In cooperation with the United States Forest Service a survey was made of typical woodlot conditions in six counties, two in each of the grand divisions of the State, and a report prepared on the marketing of woodlot products. The results fully warrant the belief that the woodlot is a valuable financial asset of the Tennessee farm and could be profitably developed.

Dairying.—Two specialists were employed under this project to encourage and develop the dairy industry in the State and put it on a profitable basis. They have established in cooperation with the county agents definite demonstrations in feeding dairy cows and building silos and better barns. Five hundred silos were built, also 23 modern dairy barns and 16 dairy houses. Two cow-testing associations, one cooperative creamery, and a State creamery association have been organized. Farmers have been instructed in the proper care of milk, growing forage crops, feeding animals, etc. The one cow-testing association increased net profits by the disposal of 20 of the poorest cows and by the use of better rations and management, so that the total profit of the fourth month was \$1,041.49 greater than that of the first month. One member having 35 cows increased his net profit from \$5.50 the first month to \$120 the fourth month. Five cream routes have been established during the year. The patrons on these cream routes have been visited by the specialist in

dairying and instructed in better feeding and the care of cows. A cheese specialist was employed in May, and preliminary surveys are being made with a view to establishing cooperative cheese factories.

This work was carried on in cooperation with the Dairy Division of the United States Department of Agriculture.

Animal husbandry.—Through the instrumentality of two specialists in animal husbandry, working with the county agents, 654 pure-bred beef cattle were brought into the State. A directory of all breeders of pure-bred live stock in the State was compiled and issued. A classification of live stock for Tennessee fairs was prepared with a view of standardizing exhibits and simplifying the work of the judges. Live-stock associations were organized with branches as needed for different kinds of stock in middle and east Tennessee. County live-stock associations were organized in Williamson and Logan Counties and others are in process of organization. The specialists have prepared plans for feeding demonstrations for the use of county agents. Barn and silo plants have been furnished a number of farmers and instruction given in 18 movable schools, and also a large amount of miscellaneous work accomplished by the animal-husbandry specialists. In cooperation with one of the railroads, a plan was devised for loaning pure-bred bulls, costing from \$100 to \$350 each, to farmers in territory tributary to their road who would form organizations for the purchase of 20 or more registered or high-grade cows. Each of these communities was required to organize under a definite plan furnished by the division of extension and to work under an executive committee of which the county agent was a member. Full directions were provided for the care of the bulls and the keeping of records. This work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture.

Control and distribution of hybrid and other crops.—There is an urgent need in all of the Southern States for improvement in the seeds of all of the staple crops. This important question has not been given the attention it deserves. The agronomist in charge of this project in Tennessee has prepared a list of seed breeders and farmers who have made more or less progress in seed-improvement work, with a view to furnishing such lists to farmers desiring to secure better seed. This list, while incomplete, has been very helpful to farmers. To give added impetus to this movement for better seed, a seed-improvement association was organized as a section of the East Tennessee Farmers' Convention. The agronomist assists in the formulation of plans for this association and gives expert advice in the work. Many of the members of the association are already engaged in the ear-to-row method of breeding corn.

Plans have been made during 1916 to distribute certain seeds improved by the Tennessee Experiment Station, such seeds to be used as a nucleus for further seed improvement on a larger scale. There were 125 bushels of beardless barley, 40 bushels of improved Tokyo soy beans, and 10 bushels of improved Spanish peanuts distributed, chiefly through the county agents, to farmers, with the understanding that a portion of the improved seed from the first crop is to be returned to the extension division. Improvement over a large area is expected to result from this plan.

Markets and rural organization.—In cooperation with the Office of Markets and Rural Organization, United States Department of Agriculture, a specialist was employed to work through county agents in the dissemination of information on the marketing of farm products and to assist in rural-organization work. Instruction was given in the growing, packing, and marketing of products in fruit-growing sections.

OUTLOOK.

Extension work in Tennessee has made definite progress during the year. More thoroughly equipped men are gradually being secured and better salaries are being paid. It is contemplated with the additional funds coming in to the extension division to extend the county-agent work, both men and women, and put on other strong specialties as leaders.

TEXAS.

Agricultural and Mechanical College, College Station.

CLARENCE OUSLEY, *Director.*

Organization and administration.—The organization of the work in Texas was altered considerably during the year. Due to the growth of the service, it was thought best to subdivide the staff into divisions, with a leader at the head of each, who acts merely in an advisory capacity and is without administrative powers. There are six divisions, as follows: Farm demonstration, which includes men and women district and county agents, boys' and girls' club agents, and agents for negroes; animal industry, which includes the specialists in poultry, dairying, creamery, beef clubs, pig clubs, hog-cholera prevention; rural economics, including specialists in organization, farm management; plant industry, including specialists in horticulture, agronomy, entomology, plant diseases, and pecans; rural women, including a specialist in group study by rural women's clubs; and extension schools. There were 129 assistants, agents, and specialists in the farm-demonstration division; 5 specialists in the

rural-economics division, 5 in the animal-husbandry division, 5 in the plant-industry division, 1 in the rural-women's division, and 4 in the extension-school division. In addition, there were a number of specialists employed in the different divisions for various emergency problems from time to time.

The leaders and specialists in these divisions, by frequent conferences, arrange itineraries and plan the work to the best possible advantage. A written plan of work for each county is prepared which includes work of both county agents and specialists. The specialists report to the director through their respective leaders. Reports of the county and women agents are made to the director through their respective district agents and the leader of the farm-demonstration division. All specialists work in cooperation with and through the county men and women agents in carrying on their respective lines of work. In counties where there are no county agents the specialists work directly with the people. All specialists except one devote their entire time to the work. At the close of the year the organization consisted of the director, the State agent assisted by 5 district agents, a State boys' club agent in charge of county agents and boys' clubs, a State home-demonstration agent and assistant and 2 district agents in charge of work for women and girls, 81 county agents, 35 women agents, and 27 specialists. This was an increase of 3 county agents and a decrease of 2 women agents during the year.

The relations between the experiment station, the college faculty, and the extension division are very cordial. The policies of the extension division are determined after advice with the extension committee of the college, which consists of the deans of the college, the director of the experiment station, and the director of the extension division. There is no cooperative arrangement for work between the extension division and the State department of agriculture. There is some duplication in farmers' institute work, which is designated by law as a part of the work of the State department of agriculture. Cordial relations are maintained with the State department of education, extension specialists, and county agents working through the rural schools in boys' and girls' club work.

Publications.—During the year 11 bulletins and 44 circulars were published. Whenever requests for information on any subject became numerous, the extension-division editor at once had prepared a circular on that subject giving the information usually asked for. A semimonthly farm-news letter, containing timely articles on farm topics, is published. The subject matter of all circulars and articles published has the approval of the specialist and college department having charge of that subject. Bulletins are sent out on request only. The demand for extension-division publications is extremely

heavy. During the year 1,511,491 pieces of literature were mailed out.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal-----	\$45, 969. 67
Smith-Lever, State-----	35, 969. 67
United States Department of Agriculture, farmers' co- operative demonstration work-----	71, 500. 00
United States Department of Agriculture, other bureaus--	4, 800. 00
County appropriations-----	76, 097. 16
Total-----	234, 336. 50

Smith-Lever funds were used in support of the following projects: Administration, printing, county agents, home demonstration, extension schools, boys' clubs (including pig clubs), farm engineering, negro work, farm management, rural organization, creamery work, and dairying. Funds from the United States Department of Agriculture were used in support of the following projects: Administration, county agents, boys' clubs, home economics, pig clubs, creamery work, dairying, and live stock.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County agents.—The county-agent work is under the farm-demonstration division and is carried on by the State agent, 6 district agents, and 81 county agents. Satisfactory progress was made with the county-agent work during the past year. The agents and specialists devoted their very best efforts to the work, but it is to the cooperation and support of the leading farmers, business and professional men of the State that much of the credit for the good results accomplished is due. The county-agent work is now being planned more carefully than heretofore. Each county agent has a written plan of work for the year which enables him to systematize his efforts and accomplish more definite results. There is also a written agreement between each agent and the specialists of the staff who are to carry on work in the various counties. A smaller number of old counties have refused to continue their cooperation this year than in any former year. The refusal to renew contracts has usually been caused by the inefficiency of the agent assigned to those counties. Most of the counties are appropriating larger amounts for the county-agent work and demanding greater efficiency in the service rendered. The work is now organized, or being organized, in 95 counties. Ten or twelve counties desire to make appropriations for county agents that

can not be accommodated for lack of available funds and qualified men to fill the positions. A larger percentage of the county-agent positions are being filled by college-trained men and much more effective work is expected.

The following is a table showing the demonstrations in the leading crops supervised by the county agents in 1916:

Some results of field-crop demonstrations in Texas, 1916.

Crop.	Number.	Report- ing.	Acreage.	Average yield per acre.
Corn (demonstrators).....	1,866	1,199	19,888	¹ 28.3
Corn (cooperators).....	5,031	.....	48,037	¹ 25.5
Kafir (demonstrators).....	77	21	1,377	¹ 22.0
Milo (demonstrators).....	220	159	4,327	¹ 36.5
Cotton (demonstrators).....	1,010	673	15,299	² 850.0
Cotton (cooperators).....	3,555	.....	34,851	² 681.0
Wheat (demonstrators).....	243	.....	11,873	¹ 20.5
Oats (demonstrators).....	181	105	4,466	¹ 40.0
Sudan grass (demonstrators).....	214	.....	1,983	.....
Cowpeas (demonstrators).....	447	.....	5,874	¹ 12.0
Peanuts (demonstrators).....	327	.....	4,122	¹ 34.2
Potatoes (demonstrators).....	169	.....	2,865	.....
Total demonstrators.....	4,754	2,157	77,661	.....
Total cooperators.....	8,586	.....	82,878	.....

¹ Bushels.

² Pounds of seed cotton.

The average yields reported in the above demonstrations are in every case considerably above the average for the State, and also above the yields reported on similar land near the demonstrations.

The agents' reports show through their direct influence or suggestion 2,298 head of registered stock of different kinds were brought into the State; 2,298 grade dairy cows and 2,395 cattle of the beef type for breeding purposes were purchased by farmers; 2,324 pure-bred hogs were brought in. There were 233 poultry demonstrations. There were 345 dipping vats erected; 222,199 head of cattle were treated for different diseases, and 69,135 head of hogs received the serum treatment for prevention of cholera; 887 farmers were instructed in the use of commercial fertilizer, with 307 fertilizing demonstrations; 2,876 tons of fertilizer were bought cooperatively; 4,219 farms were drained and 202,507 acres terraced. There were 203 farmers' organizations formed, with a membership of 7,228; 2,513 public meetings were held, with an attendance of 196,657; 1,435 field meetings were held, with an attendance of 14,158.

There was expended under this project for this fiscal year the sum of \$137,941.90.

Boys' club work.—The boys' club work is supervised by a State boys' agricultural agent and a special State pig-club agent. The field work is performed by these two agents and the county agents cooperating with the school authorities. The enrollment in all boys' club activities was 9,131, classified as follows: Corn, 2,665; cotton,

891; peanuts, 665; Kafir, 1,033; pigs, 3,359; lambs, 46; and baby beeves, 472. Three hundred and thirty-one corn-club boys, cultivating 1 acre each, reported 12,116 bushels, or an average yield of 36.6 bushels per acre. The average cost of production reported on 5,255 bushels was 37.5 cents per bushel. Forty-two boys in the grain-sorghum clubs, growing 1 acre each, reported 1,431 bushels, or an average of 34 bushels per acre. The average cost reported on 895 bushels was 28.2 cents. Seventy-six boys in the peanut clubs, growing 1 acre each, reported 3,129 bushels, an average of 41.1 bushels per acre. An average cost of 25.79 cents per bushel was reported on 1,324 bushels. Eighty-two boys in the cotton club, growing 1 acre each, reported 77,312 pounds of seed cotton, or an average of 942.8 pounds per acre. The average cost of production was \$24.51 per acre by the 22 members who made complete reports on cost.

The club members who reported on results with pigs showed a total profit of \$7.58 per head, and those that reported on baby beeves made a net profit of \$7.07 per head. The pig-club work was carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture.

There was expended during the year on the boys' club project \$3,643.09.

Home demonstration and girl's club work.—Thirty counties were organized in home-demonstration work, with a total enrollment of 4,575 members in canning clubs, poultry clubs, and home-demonstration work. This is an increase of 3 counties and 1,365 enrollment over the previous year.

This work was supervised by a State agent and two district agents. The average term of employment of county agents was $8\frac{1}{4}$ months, 8 agents being employed for the entire 12 months. The county agents held 2,876 meetings, with an attendance of 84,984, and made 5,668 visits to homes of club members.

Reports were secured from 58 per cent of the total enrollment of 2,926 canning-club members, and 36 per cent of the 894 poultry-club members made reports. Tarrant and Ellis Counties each secured 100 per cent reports.

The entire yield of tomatoes from tenth-acre gardens was 887,723 pounds, and a total of 77,867 containers of vegetables canned. In addition, 33,037 containers were packed with products from farm and orchard. The total value of canning club products was \$22,929.95. Canning-club members made 1,964 caps, 1,918 aprons, and 456 uniform dresses. Two hundred and fifty girls carried on demonstrations in bread making.

Club rallies and exhibits have been held in all counties. A short course, with 100 girls in attendance, was given at the State college of agriculture in July. The State Fair association entertained 150

girls at a farm-girls' encampment in October. The privilege of attending this encampment was awarded on a competitive basis to four girls in each county organized. About 30 girls are in colleges either on scholarships won in club work or supported by club earnings. A five-year scholarship to the State College of Industrial Arts at Denton, Tex., valued at \$1,500, was awarded to a club girl.

The enrollment of women in home-demonstration work was 706. Under the direction of the county agents these women produced 28,603 containers of canned products, made 822 demonstrations in cookery, 138 fireless cookers, 336 flytraps, 74 iceless refrigerators, and a total of 133 miscellaneous pieces of equipment with which they have carried on more efficient work in butter making, cooking, cleaning, etc. Eleven egg circles have been organized, and women and girls have produced under demonstration methods poultry products to the value of \$13,671.30.

The activities of the rural women's division consist in giving instruction to farm women in home economics. Organizations of rural women were formed. Regular written lessons were prepared and furnished these organizations. At regular intervals demonstrations were given in bread making, canning, gardening, poultry work, and the use of household conveniences. There are 90 active rural women's clubs at present, 79 of which were organized in 1916. The total membership is 1,345. The specialist in charge of this work made 161 visits to these organizations during the year.

A special agent was employed to do work among negro women and girls. She reports 860 women making winter gardens and 125 raising poultry, approximately 6,850 chicks having been raised. In canning, 10,963 containers are reported and 560 canners were made or purchased. Other work has been done in cooking and sanitation.

Valuable cooperation was given by commercial clubs, the State Federation of Women's Clubs, State and local fair associations, and many individuals.

There was expended under this project for this fiscal year the sum of \$22,285.95.

Negro work.—This work was under the farm-demonstration division. Two negro men and one negro woman were employed for extension work with negro farmers. In localities thickly settled by negro farmers 140 demonstration clubs were organized, with a membership of 6,013. There were 98 meetings, with an attendance of 21,985, and 89 field demonstrations, with an attendance of 3,121. There were 860 winter gardens, and 10 girls and 125 women enrolled in pure-bred poultry work.

Extension schools.—During the year 1916 extension schools were held in practically every populous county in the State. There were

held 47 three-day schools, 4 two-day schools, and 92 one-day schools. There was a total attendance of 16,321. From two to seven specialists and county agents lectured at each of these schools.

Dairy work.—One dairy specialist devoted all his time to teaching groups of farmers modern methods of sanitary dairying. In eight counties special work is being done through the county agents. There are numerous calls for dairy lectures and demonstrations and scores of letters are written in answer to definite inquiries about dairy problems. Assistance was given in the purchase of 80 dairy cows.

Creamery work.—This project is a part of the animal-industry division and is carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. The specialist devoted the major part of his time to give advice in creamery management. He also visited county agents and groups of farmers who were interested especially in the sale of butter fat.

Rural-economics work.—The year's result of the work were very gratifying. There were demonstrations in account keeping on 89 farms, and many meetings in this connection were held. The cotton grading and marketing work conducted in cooperation with the Office of Markets and Rural Organization, United States Department of Agriculture, was of great importance. Many thousands of bales of cotton were graded for farmers in a special effort to cause cotton to be sold on its staple value as well as its classification as to color and cleanliness. Special work was done in the construction of sweet-potato storage houses, organizing watermelon-shipping associations, marketing girls' canning-club products, construction of farmers' meat-curing plants, and the standardization of ribbon-cane sirup. Through the direct efforts of this division there have been erected 54 sweet-potato storage houses, ranging in capacity from 650 to 10,000 bushels. Fifty-nine egg circles were organized; 17 of these reported the sale of 1,260 cases, at a gain of \$2,858.45, as compared with the average market price of eggs. Several short-time credit groups were organized and were able to obtain cooperative credit at current commercial rates, which are two or three times less than the rate paid by the average farmer. Gratifying progress was made in the organization of farmers' clubs on a permanent basis for the study of local problems and the development of general community welfare; 61 such clubs were organized, with a total membership of 3,111.

Farm management and rural credit.—A leading feature of the work under this project was the organization of diversification and marketing associations. More than a hundred such associations were formed. Cooperation was maintained with the State bankers' association in efforts to establish food-and-feed farming as a basis for rural credit instead of all-cotton farming. As a result of this

work many banks in the cotton belt of Texas are now basing their credits to farmers more or less rigidly upon the condition of food-and-feed farming as distinguished from all-cotton farming. This encourages diversification and tends to safer and therefore cheaper credit.

Farm engineering.—This service consists of general advice and demonstrations in terracing lands, drainage, and advice on the construction of farm buildings, etc. Eight hundred and eleven farms, with a total of 56,486 acres, were terraced under the supervision of the county agents. This work was all under the direction of an expert farm engineer, who visits the county agents and instructs them in farm terracing and other problems. He is in the field most of the time, and in addition to instructing the agents he gives demonstrations to farmers in counties where there are no agents. He has prepared a very attractive collection of plans for economical farm buildings, for which there is a very large demand.

OTHER PROJECTS.

Live stock.—This work was carried on by the Bureau of Animal Industry, United States Department of Agriculture, and consisted of extension work in the feeding and handling of beef cattle. Work was carried on in 28 counties. There were 31 calf-feeding demonstrations, with 700 calves, and 10 beef-feeding demonstrations, with 1,500 cattle. The specialist in charge of the work addressed 10 meetings, with 5,000 in attendance; advised 995 farmers in cattle feeding; wrote 295 letters and 3 articles for publication; also assisted in the construction of 5 silos.

OUTLOOK.

The extension forces, in cooperation with bankers, business, and other agencies, during the coming year will make special endeavor to stress the importance of food-and-feed farming in opposition to the tendency of farmers to return to the bad practice of all-cotton farming. The coming year promises very successful undertakings in cooperative marketing and credit. There are excellent prospects for the organization of many farm-loan associations, and a number of groups are organizing for cooperative credit. There will be a considerable increase in hog production, dairy products, and beef-cattle improvement. The good service rendered by the county and women agents and the staff specialists is now so well known over the State that the demands for additional well-qualified agents is greater than the supply. The outlook is particularly bright that the extension forces will be able to render still greater service during the coming year than they have been able to do heretofore.

VIRGINIA.

Agricultural and Mechanical College and Polytechnic Institute, *Blacksburg*.

J. D. EGGLESTON, *Acting Director*; JESSE M. JONES, *Director*, July 1, 1916.

Organization and administration.—The work of the extension division for the fiscal year 1915–16 was conducted on the same general plans as in 1914–15. The president of the college continued acting director to the end of the fiscal year 1915–16, when Jesse M. Jones took charge as director. The other members of the supervisory force were a State agent in men's work and a State agent in home-demonstration work; 3 white men district agents and 1 negro man district agent; 1 white woman district agent and 1 negro woman district agent; 45 white men county agents and 15 negro men local agents; and 22 white women county agents and 31 negro women local agents. The negro woman district agent is employed by the extension division during the entire year. The 31 negro women local agents are employed by the extension division for only three summer months. During the remainder of the year their work is with the negro schools in the counties as supervisors of industrial work. Five full-time and two part-time specialists were employed throughout the year. The acting director in charge of the extension work had headquarters at the college. The State agents for men's and women's work had their headquarters at Burkeville. The specialists in animal husbandry and horticulture and the part-time specialists in dairying and horticulture made their headquarters at the college. The specialists in drainage, boys' and girls' poultry clubs, and hog-cholera work were located at Burkeville, in the office of the State agent.

The extension division was made a definite department of the college, with the same relative position as regards the other departments as the experiment station or the department of agricultural instruction. There is no written, cooperative agreement between the State department of agriculture and the extension division, but friendly relations exist, and there is a growing tendency toward closer cooperation. There is a verbal cooperative agreement between the State department of education and the extension division regarding the work with negro women and girls. Some cooperation has been effected with the State horticultural society, while various commercial clubs, business men's associations, county fairs, farmers' clubs, unions, and other organizations are contributing to the support of agents in the field. The county boards of supervisors and boards of education are also contributing very freely toward the support of the men and women agents. Hampton Normal and Agricultural Institute, the land-grant college for the negroes of the

State, is actively cooperating in the support and direction of the negro-extension work. The negro district agent makes his headquarters at this institution.

Publications.—During the year five bulletins and circulars were issued, with a total edition of 12,500 copies, containing 160 pages. The material for these publications was prepared by the specialists and State agents and the manuscript submitted to the heads of the divisions of the experiment station or college under which they came for approval of the subject matter. They were sent to the county agents in bulk and distributed by them, and were also mailed out to farmers and others in the State upon request. No regularly organized mailing list has been made up to date.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$29, 271. 96
Smith-Lever, State	19, 271. 96
United States Department of Agriculture, farmers' cooperative demonstration work	39, 000. 00
United States Department of Agriculture, Bureau of Animal Industry	2, 980. 00
State appropriations	2, 890. 84
County appropriations	28, 550. 18
Other appropriations within the State	8, 511. 16
Total	130, 476. 10

Smith-Lever funds were used in support of the following projects: Administration, printing, county agents, home economics, animal industry, horticulture, dairying, poultry clubs, drainage, negro women, and negro men. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, home economics, negro men, negro women, poultry clubs, and hog cholera.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—This continues to be the leading feature of the extension work. The work was carried out in 45 counties and the results are encouraging. The personnel of the agent body has been improved. Well-qualified agents are being selected, a large percentage being agricultural college men. It is estimated that practically one-fifth of the county agent's time is spent in office work and four-fifths in field work. A brief summary of the activities of the county agents is as follows:

They made 47,096 farm visits; traveled 251,617 miles; answered 13,480 calls for information at office; held 667 field meetings, attendance at meetings, 102,052; 284 farmers' clubs were organized to take charge of community work for the improvement of agricultural conditions; 157 buildings erected; 186 buildings improved; 221 lighting systems installed; 841 houses screened; sanitary conditions improved in 1,281 homes; 28 local sources of lime developed; 24 crushers installed; 31,201 letters written; 1,106 agricultural articles published; 68,728 circulars and bulletins distributed. The following table gives the results of the agents' demonstration work with field crops:

Some results of field-crop demonstrations in Virginia, 1916.

Crop.	Demonstrators.				Cooperators. ¹			Total.	
	Num-ber.	Report-ing-	Acreage.	Average yield per acre.	Num-ber.	Acreage.	Average yield per acre.	Demon-strations.	Acre-age.
Corn.....	1,099	510	12,490	² 51.8	608	8,923	.....	1,707	21,413
Cotton.....	91	61	829	³ 1,453.0	20	200	⁴ 1,000	111	1,029
Tobacco.....	52	24	281	⁴ 892.0	.....	.....	.....	52	281
Wheat.....	348	146	6,755	² 20.0	449	5,029	² 16.0	797	11,784
Oats.....	210	100	2,333	² 31.0	142	1,576	² 25.5	352	3,909
Rye.....	185	65	209	² 15.0	122	1,101	² 14.0	307	1,310
Alfalfa.....	1,244	546	9,852	⁵ 3.8	152	479	⁵ 2.3	1,396	10,331
Sudan grass.....	52	15	169	⁵ 4.0	14	38	⁵ 2.8	66	207
Crimson clover.....	703	207	10,806	⁵ 1.6	518	3,749	⁵ 1.6	1,221	14,555
Sweet clover.....	57	28	250	⁵ 3.0	6	20	⁵ 3.0	63	270
Mixed grasses and clovers.....	759	460	19,752	⁵ 2.1	375	3,668	⁵ 1.6	1,134	23,420
Cowpeas.....	800	256	7,369	⁶ 13.0 ⁷ 1.9	772	8,736	⁶ 11.5 ⁷ 2.9	1,572	16,105
Soy beans.....	381	152	6,151	⁶ 13.0 ⁷ 2.2	169	1,467	⁷ 2.6	550	7,618
Peanuts.....	74	38	916	⁶ 40.0 ⁷ 3.5	45	150	⁶ 20.0	119	1,066
Irish potatoes.....	117	92	715	² 160.0	.....	.....	.....	117	751
Total.....	6,172	2,700	78,913	.....	3,392	35,136	.....	9,564	114,049

¹ A cooperator conducts a demonstration, but his farm is not visited regularly by the agent.
² Bushels.
³ Pounds of cotton seed.
⁴ Pounds.
⁵ Tons.
⁶ Bushels of seed.
⁷ Tons of hay.

There were live-stock demonstrations as follows: With poultry, 418; dairy cattle, 288; feeding horses and mules, 26; feeding beef cattle, 39; feeding hogs, 138; feeding sheep, 17; herds of sheep and goats were started on 106 farms, of hogs on 246 farms, and of beef cattle on 53 farms. Farmers were assisted in treating 18,667 cattle for diseases and pests and 7,828 hogs for cholera. There were also 500 orchard demonstrations, with 35,580 trees, and approximately 267,776 trees were pruned or sprayed under the agent's direction. The following thoroughbred live stock was brought into the State during the year: Horses and mules, 50; dairy cattle, 779; beef cattle, 648; hogs, 2,074; and sheep and goats, 1,510.

Boys' club work.—There was no separate project for boys' club work in Virginia. This line of work has been continued with considerable success under the direction of the State agent by making it a part of the duties of the district and county agents to organize and conduct this work. There were enrolled during the year 1,976 boys in corn clubs and 638 made complete reports. The boys made 34,512.75 bushels of corn, at a cost of \$11,292.18, thus averaging 54.09 bushels per acre at the average cost of 32.7 cents per bushel. Thirty-six boys made 100 or more bushels of corn on their acres, 112 made from 75 to 100 bushels, 158 made from 50 to 75 bushels, 283 made from 25 to 59 bushels, and 48 produced less than 25 bushels. Marius Malmgren, the champion corn grower of the United States in 1915, made 174 bushels on his acre in 1916.

There were 115 boys enrolled in peanut clubs; 39 made complete reports. The average yield per acre in peanuts was 58.22 bushels. The average cost per bushel of peanuts was 41 cents.

Two hundred and eighty-two members were enrolled in pig clubs, and complete reports were obtained from 36. The average cost per pound of gain was 5 cents.

Baby-beef clubs were organized in four counties, viz, Lee, Russell, Giles, and Tazewell. Seventy-nine members enrolled and 50 reported. The average gain per calf during the 212 days fed was 445 pounds. The average cost per pound of gain was 6.43 cents.

There was expended under this project for this fiscal year the sum of \$81,900.31.

Negro demonstration and boys' club work.—There were at the close of the fiscal year 1915-16, 18 local agents working in 22 counties. This kind of work has been very successful in bringing about better conditions on the farms and in the homes of the negro population of the State. The State agent, who has charge of all county-agent work, is in direct control of this branch of the work, assisted by one negro district agent. Looking after boys' club work was made a part of the duties of the negro district and county agents the same as was the case in the white county-agents' work. A partial summary of the work for 1916 is as follows:

About 5,000 farmers were influenced to improve their farm surroundings. Eleven thousand three hundred and twelve visits were made, 58,667 miles traveled, 864 meetings held, with an approximate attendance of 35,752, and 302 field meetings held, with an attendance of 2,317. About four-fifths of the agents' time was spent in the field and one-fifth in the office. The agents assisted in the organization of 134 negro farmers' clubs, with a membership of 1,838, assisted in the erection of 112 buildings, installed 55 water systems, screened 837 houses, located 2,776 gardens, and assisted in the drainage of 1,343 acres of land. There were 495 corn demonstrators, with

2,150 acres, yielding 33.5 bushels per acre; 30 cotton demonstrators, with 85 acres, with an average yield of 1,320 pounds of seed cotton per acre; 55 demonstrators with mixed grasses and clovers, 37 alfalfa demonstrations, 68 red-clover demonstrations, and 461 demonstrations with forage crops. There were 780 orchards, containing 17,959 trees, in which the agents gave some assistance in the way of pruning, spraying, or the planting of new trees. A great deal of assistance was given in the selection, purchase, and care of live stock of various kinds. The poultry work received especial attention and the results were quite satisfactory.

Home economics and girls' canning clubs.—The home-demonstration work was carried on in 26 counties during the year, an increase of 6 counties over the previous year. In 7 counties the agents were employed for 11 months, in 5 for 10 months, and in the remainder for a shorter time, the average term of employment being 9 months. The work was supervised by one State agent, one specialist, and two district agents. In eight counties assistant agents were employed for short periods. Cooperative funds for the support of the work were contributed by boards of supervisors and county-school boards.

The enrollment of girls in clubs includes 1,113 canning-club members in 55 clubs, 1,014 girls making demonstrations with bread or sewing in 64 clubs, and 949 girls enrolled in 79 poultry clubs. There were reported 220 winter-vegetable gardens and 91 fruit gardens. A total of 120,515 containers of fruits and vegetables was reported by the girls, with a value of \$19,817.20. The income from poultry raised under demonstration methods was \$5,840.65. The value of improved poultry equipment installed is estimated at \$5,705.90. Fifty-seven girls attended a 10-day short course at Harrisonburg Normal School. Twenty-three short courses were held, with a total attendance of 187.

There were 51 home-demonstration clubs organized, with an enrollment of 1,176 members, and in addition 1,079 individual women were enrolled in the work. The women put up 154,455 containers of fruits and vegetables, valued at \$29,212.20. They also made 899 home improvements of various kinds. Many of the women have been interested in poultry work. Twenty-two extension schools were held for the women, with a total attendance of 849. Lectures were given in these schools on food values and other useful subjects. The normal schools of the State and the members of the board of health cooperated in furnishing speakers.

Negro women's and girls' work among the negro women was conducted under the supervision of 1 district agent employed for the entire year and 29 county agents whose employment extended only through the months of July, August, and September, and 6 others

who worked only a few weeks, the remainder of their time being devoted to the supervision of negro industrial work in the negro schools of their respective counties. There was a total enrollment of girls and women in this work of 4,486. The following improvements are reported: One thousand three hundred and sixty-nine homes whitewashed, 154 homes painted, and 932 homes screened. The girls and women combined put up 127,627 containers of fruit and vegetables. Eight hundred and eighteen canning demonstrations, 629 cooking demonstrations, and 111 sewing demonstrations were given for these women and girls. Seven hundred and thirty girls helped to meet their school expenses and 981 helped with home expenses. There was expended under this project for this fiscal year the sum of \$23,557.53.

Boys' and girls' poultry-club work.—This project is carried on in cooperation with the Bureau of Animal Industry, United States Department of Agriculture. In certain counties the work is a definite part of the home-demonstration agents' activities. The specialist gives these agents specific instruction from time to time. In carrying out the work the specialist gave 17 lectures, 55 demonstrations, visited 118 club members and 42 farmers, and planned and improved 19 poultry houses. The work was established in 15 counties, 78 clubs were organized, with 1,055 members. Farmer members of 8 pure-bred poultry associations increased during the year from 60 to 227.

Live stock.—One specialist is employed to carry out the work outlined under this project. His work is largely through county agents and is devoted to the organization of pure-bred live stock associations, baby-beef clubs, cow-testing, and similar associations, to the stimulation of better live-stock production, and to giving advice in live-stock management. During the year 8 additional bull clubs and breeders' associations were formed, making 21 in all. Four cow-testing associations have been formed, with 1,500 cows listed therein. The baby-beef club work was organized and fostered very largely by the specialist working under this project. In carrying on his work the specialist visited 100 demonstrators, 172 farmers, 50 agents, 22 schools, and 10 fairs; 84 meetings were held, with an attendance of 76,542.

Horticulture.—During the year one full-time and one part-time specialist were employed. The plan of work followed embraces all phases of horticulture, including pomology and vegetable and landscape gardening. Work was carried on through packing and fertilizer demonstrations, extension classes, personal visits, publications, lectures, conferences, fruit judging, educational exhibits, etc. There were 76 demonstrations in various lines of orchard work,

with an attendance of 1,137. Forty-seven lectures were delivered, with an attendance of 2,408. Sites for 76 orchards were selected. Personal directions were given to 563 persons on fertilizing, cultivating, spraying, pruning, or varieties of fruits for orchards. Visits and conferences were had with 75 county agents and 429 others. The work was conducted through county agents in all counties where there were agents, and in other counties it was taken up directly with local organizations or individuals.

Dairying.—One part-time specialist was employed under this project. A large part of his time was given to the encouragement of cheese factories. One has been firmly established and six or eight more are being arranged for. Proper feeding and housing of dairy stock and care of milk has been stressed.

Drainage.—One specialist is employed to carry out the work under this project, which has to do with farm-drainage problems. During the year the specialist traveled 6,596 miles, made 8 maps of drainage surveys, and assisted 65 farmers by giving demonstrations in staking out lines for laying tile. Letters, news articles, and addresses on drainage were prepared. Besides this specific work, assistance was constantly being given to county agents in their work for farm drainage; 121 drainage systems were established; 201 farmers drained all or part of their farms; and 2,460 acres were drained with tile and 2,949 by ditches.

OTHER PROJECTS.

Hog cholera.—The work under this project is financed entirely by the Bureau of Animal Industry, United States Department of Agriculture, but is carried on in close cooperation with the extension division of the college. The headquarters of the specialist are at Burkeville, with the State agent in charge of county agents. His work is to train county agents in the methods of combating hog cholera and also to disseminate information to farmers of the State regarding the use of hog-cholera serum by lectures, demonstrations, and other ways.

OUTLOOK.

The outlook for extension work in the State is good. Counties are far more interested in demonstration work for both men and women than ever before, are more ready than formerly to appropriate funds for conducting the work, and are asking for better agents. Up to July 1, 1916, the principal supervision was by the State agent, located at Burkeville. On that date a director was appointed with headquarters at the State agricultural college. The plan for next year contemplates an increase in the number of county agents, both men and women, and also several additional specialists

will be employed, and it is confidently expected that efficient service will be rendered.

WEST VIRGINIA.

Division of Agricultural Extension, College of Agriculture, West Virginia University, Morgantown.

C. R. TITLOW, *Director*.

Organization and administration.—The extension division is a definitely organized branch of the college of agriculture on an equal standing with that of the experiment station. The director of extension is in charge of all lines of extension work of the college and is responsible to the dean of agriculture. The organization now consists of the director, State agent, and 2 district agents in the men's work, State agent and assistant in women's work, State corn-club agent, 12 specialists (2 full time and 10 part time), 28 county agents, 14 home-demonstration agents, and 23 district club agents. This is an increase over last year of 2 county agents, 7 district-club agents, and 11 specialists. Besides the regular extension workers a large amount of assistance is given by the members of the college faculty, experiment-station staff, and special farmers employed as institute instructors. The work was greatly strengthened during the year as a result of increased Smith-Lever funds and funds for the work of county agricultural agents appropriated by the county courts under the provision of an act passed by the State legislature in February, 1915. The district boards of education are cooperating where district supervisors for boys' agricultural clubs are employed. A close relationship was maintained with the State department of agriculture and the agricultural associations of the State. Also with every department of the college of agriculture and the experiment station.

The extension offices, except those of the specialists and mailing clerks, are in a building leased for that purpose. The department is well equipped with necessary furniture, modern equipment for office work, stereopticon slides, charts and maps for lecture work, and canners, cooking utensils, scales, testers, etc., for demonstrations of various kinds.

Publications.—During the fiscal year there were published a total of 44 circulars, varying in size from 4 to 32 pages. The editions varied from 1,000 to 20,000 each, totaling 220,500. These circulars are arranged in series, so as to be of the greatest possible service to four classes of people, viz, the farmers, farm women, farm boys, and farm girls. Others are published for special purposes, such as farmers' institutes, correspondence courses, etc. The number of

requests for and the use made of these circulars indicate that they are greatly appreciated by the farm people of the State.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$22, 071. 73
Smith-Lever, State	12, 071. 73
United States Department of Agriculture, farmers' cooperative demonstration work	25, 000. 00
United States Department of Agriculture, Bureau of Animal Industry	1, 260. 00
State appropriations	22, 929. 00
County appropriations	25, 668. 00
Other sources within the State	12, 860. 00
Total	<u>121, 860. 46</u>

Smith-Lever funds were used in support of the following projects: Administration, county agents, boys' clubs, movable schools, girls' garden and canning clubs, home economics, and printing and distribution. Funds from the United States Department of Agriculture were used in support of the following projects: County agents, boys' clubs, girls' clubs, and dairying. The following projects were supported entirely from sources within the State: Farmers' institutes, aid to agricultural education, and correspondence courses.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—In the administration of county-agent work there were employed 1 State agent, 2 district agents, and 28 county agents. An annual conference was held in January, 1916, at which all agents were present. District conferences of agents were held in June. The county agents received active cooperation and assistance from the specialists, farmers' institute instructors, and members of the college and station staffs. The agents have worked under definitely drawn plans of work, formulated with the advice and assistance of the local farmers' organization.

Definite work was done in cooperation with 252 local farmers' clubs, having a total membership of 6,398. In connection with these clubs, 4,139 public and field meetings, with an attendance of 222,039, were held. These clubs saved \$60,575.56 by cooperative purchasing of lime, fertilizer, etc. By the use of lime, 10,813 acres of acid soils were sweetened. There was saved, above the amounts commonly saved before, 30,439 tons of stable manure. The wet lands drained totaled 1,452 acres. Winter cover crops were sown on 14,921 acres. Carefully planned crop demonstrations were conducted by 1,059

farmers on 2,353 acres, which showed increased crop yields, due to demonstration methods, valued at \$36,529.68. There were erected with the help and advice of the county agent 618 new silos. Assistance was rendered farmers in pasturing and feeding 833 dairy cows. Active cooperation was given three cow-testing associations. Plans were furnished for the construction of 68 new barns, and waterworks were installed in 311 farm homes. County agents made 5,853 personal visits to boys' club members. Practically every county agent took an active part in county and district teachers' institutes. In connection with boys' and girls' club work, 639 rural schools were visited, and 104 boys and girls are now in high schools and colleges as a result of the influence of the club work.

There was expended under this project for the fiscal year the sum of \$57,421.77.

Boys' club work.—The enrollment in all clubs was 4,536, classified as follows: Corn, 911; potato, 1,081; pig, 560; poultry, 1,984. The work in the State was supervised by a State boys' club agent. He has an assistant in poultry clubs. The field work was performed by county agents, 26 district club agents, school authorities, and local leaders. Three hundred and fifty-four communities have organized boys' agricultural clubs with regular officers that are elected annually. Seventy-five per cent of club members living in territory which was personally supervised completed their work. Six club members entered the freshman class at the State university.

There were 362 corn-club boys, growing 1 acre each, on which was produced 20,307 bushels of corn, or an average of 56 bushels per acre. The average cost per bushel was 31 cents. Nine boys made above 100 bushels on their acres. Potato-club members grew one-eighth of an acre each. Four hundred and sixty-nine members grew 11,284 bushels of potatoes, averaging 24 bushels per one-eighth acre, or at the rate of 192 bushels per acre. The average cost per bushel was 34 cents. The highest yield on one-eighth acre was 51 bushels. In the pig clubs 270 boys reported 58,936 pounds of pork. The average weight of pigs was 218 pounds, and the average cost per pound was 6 cents. Poultry-club members raised 16,322 fowls, an average of 20 fowls per club member. The average cost per fowl was 30 cents.

There was expended under this project for this fiscal year the sum of \$11,309.85.

Home economics.—The extension work in home economics has made considerable growth and satisfactory results have been obtained. Seventy-five farmers' institutes were held with separate sessions for women. Seven women of training and experience gave instruction relating to the needs of farm women. There was a good attendance and much interest shown in better methods of house-

keeping. Efforts were made to promote the organization of clubs among the rural women of the State. A bulletin was prepared on the advantages of club organization and containing a list of subjects for club study, which was distributed by means of the home-economics mailing list and through all home-economics meetings. Thirty-nine farm women's clubs have been organized with an enrollment of about 900. The extension division has prepared a series of lessons for these clubs. Seventy-five sessions for women were held at farmers' institutes. Forty-nine students were enrolled in a home-economics correspondence course. A course in cookery for rural schools has been planned and furnished to 70 teachers, 25 of whom reported that they had carried out all or part of the course planned.

There was expended under home economics and girls' club work projects for this fiscal year the sum of \$9,332.73.

Girls' club work.—Fourteen counties are organized in the girls' club work, with a total enrollment of 832 girls, 610 of whom made reports. One hundred and fifty-nine girls made demonstrations in cooking-club products and 417 made caps and aprons. This is an increase of five counties over the previous year. Six county agents are employed full time, the others from six to eight months. County agents have held 537 club meetings, with a total attendance of 5,434, and have made 1,575 visits to homes of club members.

Local appropriations have been secured from county courts, high-school boards, district boards of education, and county agricultural associations. Four counties have county home-demonstration committees, which give active aid in organizing and supporting club work.

A three-year plan for girls' club work is used. First-year girls are required to have one-tenth acre of tomatoes; second-year girls grow one-twentieth acre of beans and one-twentieth acre of either strawberries or red raspberries, interplanted with tomatoes; third-year girls grow one-twentieth of an acre of a rotation of peas and beets and continue to cultivate the fruits planted the previous year. Each year's work includes suitable sewing. The total yield of tomatoes reported from tenth-acre gardens was 177,362 pounds, and the total number of containers reported was 23,446.

Extension schools.—One agricultural and one home-economics school are granted annually in each county. These schools last four days. Usually one or two evening sessions are held in addition to the regular day sessions. Courses in soils, dairying, horticulture, animal husbandry, farm crops, and agricultural education are given. Twenty-eight of these schools were held, with an attendance of 1,338. The work given is more scientific and more thorough than can be given at farmers' institutes or special meetings.

OTHER PROJECTS.

Farmers' institute work.—Ten one-day and 119 two-day farmers' institutes were held in 42 different counties. There was a total of 583 sessions, with a total attendance of 47,703 and an average attendance per session of 82. The farmers' institutes have materially assisted in bringing about the inspiration and cooperation which has made possible the success of county farm bureaus, county-agent work, boys' and girls' clubs, and other movements looking toward the development of rural life. Instruction given was of a more advanced nature than ever before, due to the rapid advancement made by the rural people along agricultural lines. Progress was made in connecting more closely the institute work with other forms of extension work. A large number of farmers' clubs and farm women's clubs have been organized as a result of farmers' institute work.

Dairying.—This work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture, the State allotting \$1,344 and the department \$1,260 for its support. Practically all of the dairy work was done by the county agents. The county agents were visited two or three times during the year by the specialist to see that the work was being properly carried on. Besides the regular demonstration work special dairy meetings and three-day extension schools were held, all of which were well attended. Work was done in the building and remodeling of dairy barns and assisting dairymen in keeping milk records. The farmer was visited once a month for two or three months and taught to take the samples and to do the work himself.

Aid to agricultural education in schools.—This work was carried on in cooperation with the schools. Six weeks were devoted to county teachers' institute work in various parts of the State. With the assistance of county superintendents, educational campaigns were conducted in several counties. District institutes were held at places accessible to all the teachers of the county. With the object of arousing a better school spirit, a large number of community meetings were held; also conferences with county superintendents, boards of education, club leaders, county agents, and others. Two correspondence courses were prepared and conducted, in which a total of 650 students were enrolled.

Correspondence courses.—Fifteen correspondence courses have been offered. Eight courses consisting of 20 lessons and seven consisting of 10 lessons were offered. These lessons were prepared by the regular instructors in the college of agriculture. A total of 809 persons enrolled for these courses. The extension department outlined a

plan of definite reading for groups of farmers to use as a basis of discussion at their meetings. This form of work is exceedingly popular. During the past year 86 farmers' clubs, with a total membership of 1,021, have taken the reading-circle course. All the clerical work was done by the extension division.

OUTLOOK.

The fact that the attendance during the annual farmers' week at the agricultural college increased from 263 in 1915 to 807 in 1916 is evidence that the work is becoming more popular and successful than heretofore. Increased interest is shown in all other lines. All forces working for better farm conditions are in perfect harmony. The good progress made during the past year toward meeting the needs of rural life in the State encourages the belief that much greater progress will be made in the future.

EXTENSION WORK IN THE NORTH AND WEST.

INTRODUCTION.

Marked progress was made during the year ended June 30, 1916, in the development of extension work in the Northern and Western States, especial progress being noted in the development and use of projects and in the clearer definition of the work of subject-matter specialists. More specific plans of procedure in the work were thought out, the organization and cooperation of interested forces were secured, and a correlation of work was established which would not have been possible had less attention been given to the preparation of definite written plans for the year's work in advance.

Written project plans are being made not only by extension directors, but by specialists and county agents for the development of the special work of each. As these extension workers have prepared their projects the necessity for a definite understanding with other workers has been made obvious, differences have been avoided, and plans for cooperation provided which have done much toward securing concrete results.

ORGANIZATION AND ADMINISTRATION

Extension work was conducted during the year under the terms of the cooperative extension act and the specific memorandum of understanding in force between the department and 31 of the 33 Northern and Western States, and harmonious cooperative relations were maintained with the States.

The organization of the work continued practically the same as during the preceeding year. In six States there was a change in the extension director, viz, Colorado, Kansas, Nevada, Ohio, South Dakota, and Washington.

To correlate the work of research, resident teaching, and extension a number of extension directors or boards of trustees have provided for advisory councils composed of members of the three divisions of the college staff relating to research, resident teaching, and extension. These councils assist the extension director in planning extension work so as to secure the most efficient assistance from the other two divisions.

The work of the subject-matter specialists was more clearly defined during the year, and particularly their positions in relation to the work of the county agents. The majority of extension directors, as well as the subject-matter specialists themselves, have adopted the viewpoint that the work of the subject-matter specialist is largely as follows: (1) Instruction of the county agent in subject-matter technique; (2) instruction given to groups of people, and demonstrations conducted in cooperation with the county agent as a part of the plan of the latter for extension work within that county, special training being given to the leaders of such groups; (3) individual assistance to farmers on special phases of subject matter as deemed necessary or advisable by the county agent. Attention was given to needs of farmers in counties not having agents, but the extension directors believed that much more satisfactory use of funds is made when a specialist works in conjunction with the county agent.

As extension work becomes more defined in its detailed organization, it has been possible to perfect harmonious working relations with various State institutions, such as boards of agriculture, departments of education, granges, and fairs.

FINANCES.

In the 33 Northern and Western States \$2,740,088.96 was used for extension work during the fiscal year ended June 30, 1916. The following amounts were provided from the sources indicated: Federal Smith-Lever, \$653,573.68; State Smith-Lever, \$323,573.68; United States Department of Agriculture, \$350,089.42 (States Relations Service, \$301,597.90; Bureau of Animal Industry, \$45,402.44; Office of Markets and Rural Organization, \$3,089.08); State appropriations, \$256,313.99; college appropriations, \$15,559.36; county appropriations, \$22,456.35; other sources within the State, \$29,243.98. (A detailed statement by States is shown in the table on page 391.

Smith-Lever funds were spent as follows: County agents, \$365,237.02; administration, \$131,394.82; printing and distribution of publications, \$18,837.11; home economics, \$112,754.04; boys' and girls' clubs, \$58,936.93; dairy husbandry, \$31,215.49; horticulture, \$35,644.69; agronomy, \$28,457.22; animal husbandry, \$18,105.13; poultry husbandry, \$18,157.10; animal diseases, \$11,817.74; exhibits and fairs, \$2,157.82; farm management, \$33,469.25; agricultural engineering, \$8,471.24; entomology and ornithology, \$8,164.38; plant pathology, \$9,523.78; rural organization, \$3,086.02. The total funds from all sources expended by 33 States for major projects are as follows: County agents, \$1,256,911.29; administration, \$285,375.07; extension schools, \$166,470.75; home economics, \$151,686.09; miscellaneous agricultural specialists, \$46,745.22; boys' and girls' clubs,

\$171,987.32; farmers' institutes, \$81,095.49; dairying, \$101,575.91; publications, \$66,412.79; farm management, \$81,568.91; horticulture, \$56,561.99; agronomy, \$56,864.59; fairs and exhibits, \$10,323.90; and agricultural engineering, \$24,166.61.

Approximately 62.3 per cent of the total funds were used for salaries of extension workers, and over 20.8 per cent was used for travel expenses, with only 16.7 per cent for equipment, labor, publications, and all other expenses.

PUBLICATIONS.

Extension publications to the number of 558, aggregating 6,583 pages, were issued in the 33 Northern and Western States during the past fiscal year, a decrease of 55 publications, but an increase of 106 pages over the fiscal year ended June 30, 1915. Many of these publications were used to describe the work of the extension division and served a much-needed end in acquainting the people with the plans for work. As extension work centers more and more about the county agent the publications become increasingly useful in establishing county-agent work.

COUNTY-AGENT WORK.

Organization and administration.—The number of county agents employed in the Northern and Western States has increased from 330 on June 30, 1915, to 419 on June 30, 1916, thus maintaining about the normal rate of increase for the past four years. During the year Maine, where the work had developed wholly under State auspices, brought its work into cooperation with the department. Nevada has completed arrangements for placing agents in two districts, which will inaugurate county-agent work in each of the 33 Northern and Western States. Delaware and Connecticut now have an agent in each county. In Missouri there was a decrease of one agent and in Minnesota a decrease of six. In the first the discontinuance was only temporary, and the work has since been resumed. In the second it was occasioned by the work being undertaken too largely under the auspices of commercial interests and without the farmers being adequately consulted. Efforts are now under way to reestablish the work in the counties discontinuing, with the farmers of the county cooperating. Practically all States now institute the work in a new county only after the farmers are thoroughly informed as to the nature of the work and after a fair percentage of the farmers have expressed a desire for it.

Work with farmers' organizations.—The year has been one of marked development in the work of organization. The number of members of farm bureaus increased from 80,966 to 98,654. The

farm bureaus, through their officers and members, have become more active in assisting the agents in their work. They have been especially helpful in determining a program of work and selecting the projects to be undertaken. They have conducted demonstrations for the agents or secured others as demonstrators, have assisted in calling and conducting demonstration meetings, and been particularly helpful in organized follow-up work. Four thousand nine hundred and eighty-seven subsidiary associations were organized by county agents. Many of these organizations are composed of groups of men interested in a particular line of agricultural work. Such associations involve a wide range of activities. In several counties the men interested in growing potatoes were organized into potato-growers' associations and induced to plant a standard type of potato especially adapted to their locality. Live-stock breeders' associations were organized for the purpose of stimulating the introduction of pure-bred stock, especially pure-bred sires, to concentrate on a single breed, to conduct sales, to control animal diseases, ship the stock to market, etc. Cow-testing associations, hog-cholera control clubs, farmers' clubs, purchasing and marketing associations, etc., are other types of associations organized upon suggestion of the agents to secure the development of special lines of agriculture. The agents were of especial assistance to farmers in connection with cooperative organization along business lines; 296 purchasing and marketing associations were organized during the year. The total amount of business done by associations organized by agents or their predecessors amounts to \$5,678,992, and the saving effected by reason of such cooperation amounted to \$598,560.

Probably the most important feature of the work of the year was the increased tendency toward specialization or conducting the work on the lines of carefully developed written projects. In developing a project the work is planned to cover the whole county or that portion of the county to which it is particularly applicable, and to carry it on until it is generally adopted by the farmers as a common practice. By concentrating in this manner on a few important lines of work the agents are able to reach more farmers and effect a greater improvement in the agricultural practices in their counties. A field study indicates that about 40 per cent of the work done is now in pursuance of written projects.

Results.—The work is developing conservatively and farmers both through organizations and as individuals are cooperating heartily. Subject-matter specialists, both from the colleges and department, have rendered valuable assistance and in many cases have added materially both to the quantity and quality of the results secured.

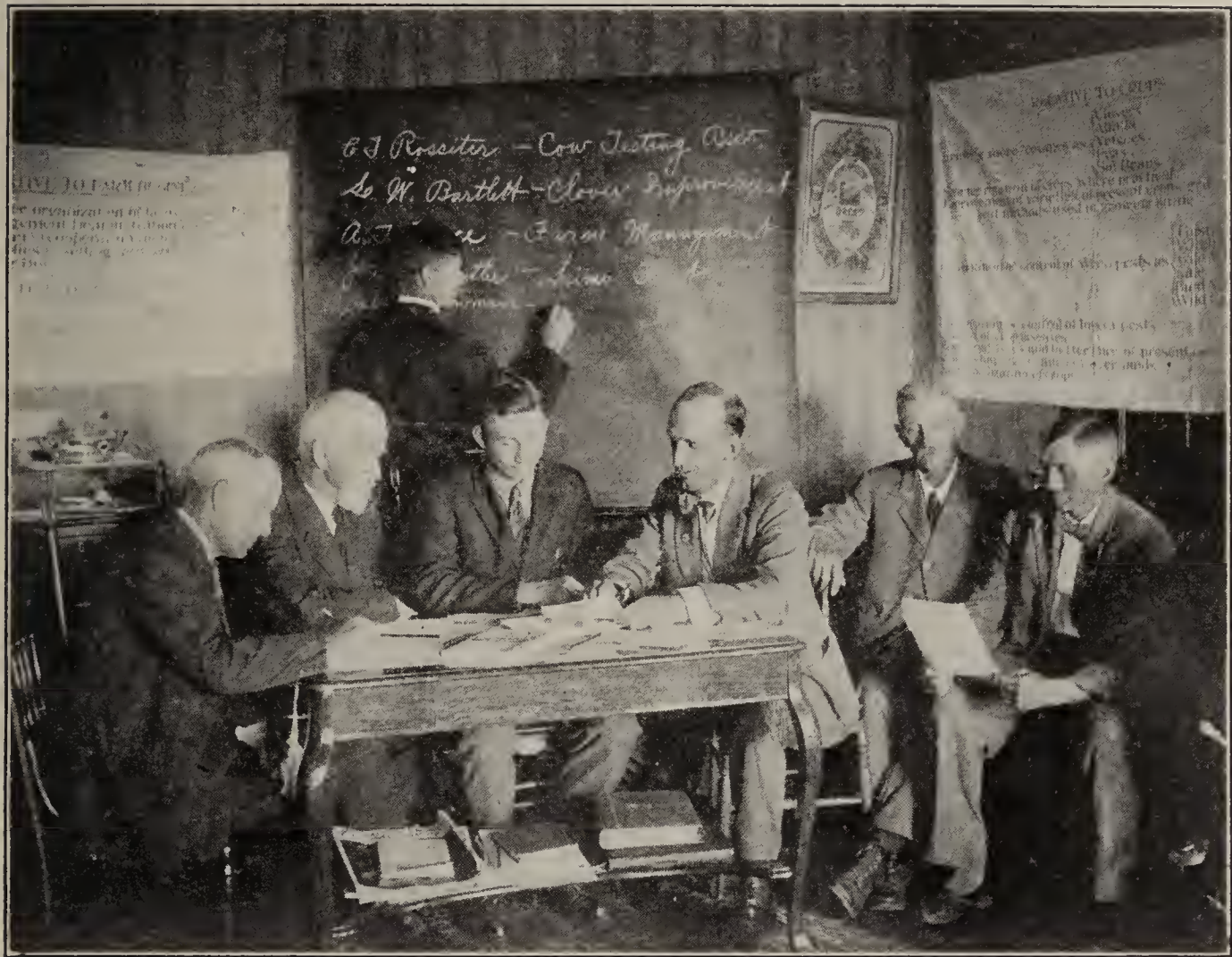
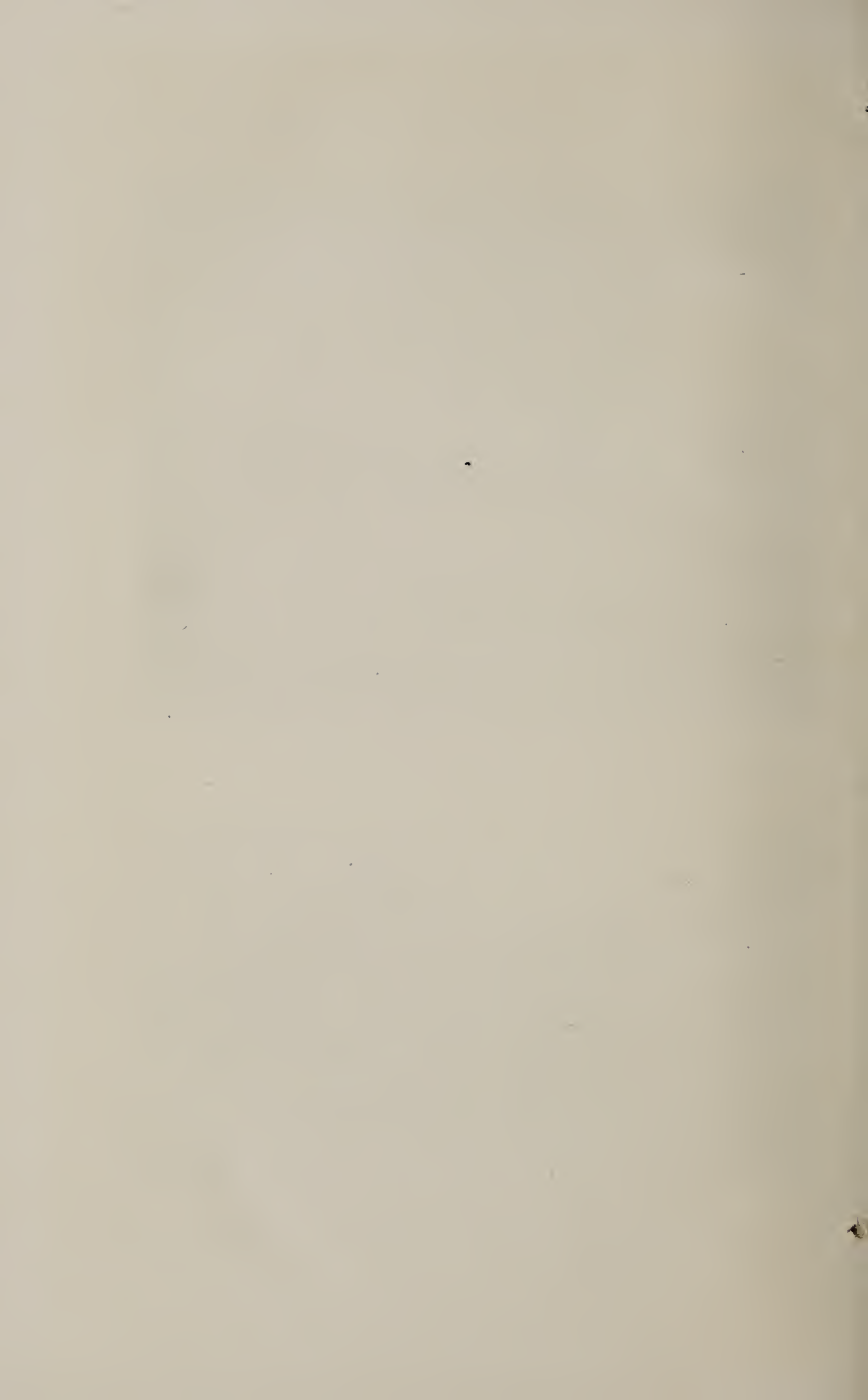


FIG. 1.—FARM BUREAU COMMITTEE PLANNING A COMMUNITY PROGRAM.



FIG. 2.—THE COUNTY AGENT TEACHES BY DEMONSTRATION.
Here he is showing a group of farmers how to make lime-sulphur mixture.



The following statement summarizes in part the results of some of the more important lines of work:

Some results of the work of the county agents in 1916.

	Number.
Farms selecting seed corn in the fall.....	31, 532
Farmers testing seed corn for germination.....	30, 213
Total acreage of corn affected by county-agent work.....	1, 310, 550
Farmers treating seed oats for smut.....	53, 131
Acres sown with treated seed.....	1, 281, 118
Farms on which the agent knows that wheat was grown following his suggestion.....	9, 509
Total acres of wheat so grown.....	296, 837
Farms on which the agent knows that seed potatoes were treated for disease, following suggestions.....	8, 232
Acres of potatoes planted with seed treated for disease.....	30, 522
Farms where agent knows alfalfa was sown following his suggestions.....	8, 313
Orchards cared for in whole or in part on suggestion of agent.....	5, 853
Trees in orchards so cared for.....	1, 158, 075
Registered sires secured.....	6, 264
Cows tested for milk production through cow-testing associations.....	82, 190
Animals treated for tuberculosis and blackleg.....	139, 197
Hogs vaccinated for cholera by agent or on his suggestion.....	210, 337
Farms on which balanced rations figured by county agent are known to have been adopted.....	5, 882
Live-stock breeding associations organized by agents in 1916.....	112
Total membership in such live-stock breeding associations in 1916.....	3, 044
Crop-rotation systems planned and adopted.....	3, 225
Drainage systems planned and adopted.....	973
Areas included in these drainage areas.....	124, 754
Number of farms on which the agent tested the soil for acidity.....	10, 638
Tons of lime or limestone used.....	210, 987½
Farm analysis records taken by county agent.....	4, 468
Farm analysis records returned to farmers by county agent.....	5, 104
Farmers modifying farm management because of farm records.....	1, 500
Farmers induced by the agent to keep farm accounts, partial or complete.....	8, 337

In extending their work the agents visited 114,057 farmers and held 36,640 meetings, attended by 2,134,477 people. A total of 32,845 demonstrations were conducted, at which 10,417 meetings were held, with an attendance of 242,114. Six-sevenths of the demonstrations related to forage crops, plant-disease control, cereal crops, horticulture, soil improvement, and live-stock disease control. Nine hundred auto excursions were conducted by the agents with an attendance of 53,603. These were for the purpose of studying successful farms and demonstration work. The agents conducted or assisted at 2,388 local extension schools, including farmers' institutes, with a total enrollment of 357,807. They prepared 18,818 articles for publication in local papers and mailed 1,791,291 circulars and circular letters to farm people.

Below is given a table of such of the demonstration work of the agents as admits of tabulation and where the results of the demonstrations were accurately determined:

Some results of field demonstrations with crops.

Kind of demonstration.	1	2	3	4	5	6
	Number of demonstrations.	Number of meetings at demonstrations.	Total attendance at meetings.	Total area in demonstrations.	Resultant increase yield per acre.	Estimated net profits resulting from demonstrations.
Corn.....	1,110	383	7,317	48,302	¹ 15.5	\$268,902.12
Oats.....	158	27	345	1,530	¹ 14.7	11,921.10
Wheat.....	500	106	2,742	10,505	¹ 8.1	85,249.48
Barley.....	25	4	27	90	¹ 6.5	4,915.30
Flaxseed.....	76	-----	-----	1,502	¹ 2.0	7,524.00
Clover.....	372	54	1,107	3,265	-----	56,166.75
Soy beans.....	340	100	2,136	2,946	-----	24,693.20
Alfalfa.....	876	162	2,830	7,537	² 1.6	144,203.40
Forage.....	405	104	924	11,072	-----	415,696.93
Potatoes.....	868	409	9,738	6,753	¹ 39.7	119,000.25
Plant diseases (smut).....	4,716	1,053	27,993	407,114	¹ 4.6	1,197,722.39
Plant diseases (general).....	48	28	345	2,726	-----	25,374.32
Miscellaneous crops.....	28	14	93	1,063	-----	1,482.75
Horticulture.....	102	80	1,005	58,417	-----	28,403.82
Orchard work (spraying and pruning).....	286	318	7,004	-----	-----	31,689.50
Control of rodents and animal pests..	60	32	770	104,920	-----	219,832.00
Control of insect pests.....	128	50	1,180	9,926	-----	123,475.00
Weed eradication.....	23	9	83	84	-----	1,139.82
Soil improvement (general).....	588	67	1,392	20,214	-----	218,182.93
Soil improvement (liming).....	351	84	702	5,600	-----	46,308.25
Total.....	11,060	3,084	67,733	703,567	-----	3,031,883.31

¹ Bushels.

² Tons.

It should be noted that the above table includes only 11,060 of the total of 32,845 demonstrations conducted. The profit of more than \$3,000,000 applies to the results secured on the demonstration areas only and does not include the spread of influence from these demonstrations. While this amount is more than double the total salary and expenses of the 419 agents to the Government, the States, counties, and individuals, it but very inadequately expresses the money value of the work. In many demonstrations, particularly those with live stock, it is difficult to secure accurate data, though the benefit derived from the demonstrations may be very evident. In connection with live-stock demonstrations the known measurable results amount to more than \$107,000, which is a small estimate of the good accomplished.

Influence of the work.—It is extremely difficult to accurately measure the spread of influence and determine the number of farmers who adopt either in whole or in part the lesson of the demonstration. The State of Maine has done the most careful work along this line. In one instance 32 farmers are known to have copied a silage demonstration, and in another 12 farmers built or rebuilt their poultry houses after a demonstration house had been built in their town. In Penobscot County, Me., alone over 400 farmers are

known to have put in practice on their own farms some feature of demonstration work illustrated by the county agent on a neighbor's farm. This is more nearly the true test of county-agent work than the specific results of the demonstrations themselves, because the whole object of the work is to change community practices rather than to help individual farmers.

Training of county agents.—The matter of training men for county-agent work is one of the most important problems concerning the movement at this time. Approximately 100 new agents are appointed each year and somewhat more than half as many agents resign their positions. The difficulty of finding qualified men for these positions is retarding the growth of the work. A few States are developing a corps of assistant county agents who, if they make good in their positions as assistants, are promoted to county agents as vacancies occur. California, Connecticut, New York, and Oregon are developing such systems with gratifying success. Such assistance can usually be secured at a salary from \$900 to \$1,200. A good assistant relieves the county agent of much of the routine work and can attend to reports, correspondence, measurement of plats, and securing data from demonstrations, and in this way release the agent for the larger phases of the work. For the most part they are assigned to a county and spend their time with one county agent, though in California the assistants work from the college as headquarters and render assistance in various counties as the situation demands.

Outlook.—The year was one of definite progress. The work is now thoroughly established as a part of the extension organization of the college. County farm-bureau organization is no longer a doubtful experiment. Not only is the need for county organization recognized, but effective types are being established. Probably the most distinctive progress has been the general acceptance of the need of written plans as the basis for all demonstration work.

HOME ECONOMICS.

Home-economics extension work in the Northern and Western States progressed along two well-defined lines during the year: (1) The State-wide work of the home-economics specialist and (2) the county work of the home-demonstration agent.

STATE-WIDE WORK OF THE SPECIALIST.

This is fairly well established in every State, approximately 90 women being engaged in it. The newer work, that of the county home-demonstration agent, is gradually being built upon the foundation laid by the home-economics specialist. The means by which

the worker reaches farm women are as follows: (1) Bulletins and circulars on subjects which supplement the work of the specialist by setting forth practical information; (2) single demonstrations and lectures given before such organizations as the Grange and the Federation of Women's Clubs; (3) personal visits to homes for counsel and to learn of the needs and problems of individual housekeepers; (4) home-economics extension schools, 450 of which were conducted during the year, and through which 27,000 women were instructed; (5) home-economics study clubs, by means of which women working together applied and made permanent the work of the home-economics specialist, and of which there are at this time approximately 1,350 in the 33 States, with a total membership of 19,210 women; and (6) home-makers' tours, which gave opportunity for the inspection of household conveniences, heating, lighting, and water systems, arrangement of home furnishings, farm gardens, lawns, etc. Eleven of these excursions were known to be conducted during the past year, each with a procession of from 50 to 100 automobiles.

This general propaganda of ideals and standards of home making has aroused many women throughout the country to a better appreciation of home economics. It has stimulated a desire for good methods of carrying on the everyday work of the home and for acquiring the simple beauty and comfort suggested. Its permanent influence has naturally been limited by the briefness of the instruction and the long periods of time intervening between visits of the specialist to each community. Indeed, the greatest limitation of this State-wide work is that a small number of women are attempting to cover a large area and to reach many people. As a means of inspiring higher ideals of living this is desirable, but for thorough instruction by means of demonstration the force in most States is entirely inadequate. Twenty States have but one full-time worker each and four have but two each. In other States the number varies from 3 to 10 workers. This force is obviously inadequate. Hence the general plan for extension work with farm women looks toward an organization in each county of every State which will become a distributing center for the best things obtainable from the college and with a trained woman in charge to act as a medium through whom the home-economics specialists from the college may extend their instruction to all the farm women, no matter how far removed from the college or difficult of access. The State specialists will cooperate with the county woman agent in extension schools and other activities. The latter will follow up the instruction in such a way as to make it of permanent value.

THE COUNTY WORK OF THE HOME-DEMONSTRATION AGENT.

Previous to the fiscal year 1915-16 four women had been employed on State funds in county demonstration work in Illinois, Massachusetts, New York, and Pennsylvania. The first woman county agent employed on cooperative funds began work in Sullivan County, N. H., in April, 1916. Special home-economics projects were cooperatively conducted during the spring of 1916 in Maricopa County, Ariz.; Canyon County, Idaho; and St. Joseph County, Mich., by the several State agricultural colleges and the United States Department of Agriculture. At the close of the fiscal year 1915-16 plans were under way for the introduction of woman county-agent work in 17 counties, in which counties work was actually begun prior to the completion of this report.

Information from a number of the States indicates a growing interest in county home-demonstration work, and it is believed that if sufficient funds are available the coming year will show a marked advance in this line of service, and an army of workers trained to put the business of home making on a sound and efficient basis will be in closer touch with the farm-home problem than has been possible for any group of workers.

LINES OF PROGRESS DURING THE YEAR.

Advancement was noted during the year along the following lines:

- (1) The number of workers is increasing.
- (2) Subject matter taught is becoming less abstract and more in keeping with practical everyday problems in the home.
- (3) Methods of presenting the work are becoming more consistent with the briefness of the courses and the maturity and experience of those instructed.
- (4) The work is better adapted to the climatic, social, and economic needs of the people, and as a result increased cooperation is attained. This is evidenced by the insistent demand in every State for more of this type of work.
- (5) Demonstrations are taking the place of lectures and the testing out of methods is supplanting the voicing of theories.
- (6) There is improvement in the illustrative material used. Excellent charts, slides, models, and flexotyped directions and outlines have been introduced in a number of States.
- (7) The equipment of the demonstrator shows growing ingenuity and skill in bringing together the best utensils for food preparation, cutting, fitting and sewing, and exhibits, such as suitable rugs, draperies, wall paper, etc., to illustrate principles of home making.

- (8) The idea that a woman is an economic factor in farm life is being brought forward, and it is recognized that the alertness of the farm woman, her judgment in the selection, preparation, and preservation of foods, her skill in the purchase and care of the family clothing, her attention to the elimination of household waste, her best use of resources within her reach are vital factors in the farming business.
- (9) Women are considering standards by means of which the results of their work may be measured, realizing that, while its far-reaching significance can not be fully estimated, there should be proof of accomplishment which will be of satisfaction to the specialist in the field and all those connected with the work.
- (10) Follow-up instructions are receiving marked attention, the first step being the organization of the extension school group into a permanent club with a continuous program of activities, based upon the teaching of the school. It is recognized that unless the demonstrator's instruction functions in home life in such a way as to make it more useful and satisfying the purpose of the work is defeated.
- (11) There is a growing tendency for the workers to devote their time to farmers' wives and daughters, rather than to women and girls of cities and towns. Rural centers are being created; leaders among farm women are being discovered and trained.
- (12) The annual conferences of home makers, called at the various State colleges, are becoming an important educational and social factor of the year's work. Eighteen of the States have had such conferences during the past year, with an attendance of from 100 to 600 women.
- (13) The home-economics specialist is broadening the scope of her service by securing the cooperation of the rural engineer, the landscape gardener, the poultryman, the dairyman, and other specialists who serve the home in various capacities.
- (14) This work is showing its effect, not only in improved home conditions, but in community cooperation, traceable to the home-economics clubs. One result has been the introduction of hot school lunches. Women's departments of county and State fairs have become more educational, cooperative marketing of home products has been developed, and other county projects put on foot.

OUTLOOK.

It is anticipated that during the coming year, through the combined efforts of the more than 100 trained women engaged, home-economics extension work will be a vital force in helping farm women

to lesson toil, increase efficiency, improve health conditions, command a measure of leisure, cultivate the art of neighborliness, gain a zest in common tasks, and to recognize that a woman's health and vitality are among the most valuable assets of society, since she must be depended upon not only to set up standards of excellence in her own home, but to extend these into the larger housekeeping of the community.

EXTENSION SCHOOLS.

Use of extension schools.—Extension schools begin about December 1, when the growing and harvesting seasons are practically over, and close the middle of March, when the growing season is about to open. Each school furnishes an opportunity for consecutive instruction during a period of three or four days in such subjects as are of immediate importance to the community. The instructors in these schools may use local practices and material with which to exemplify their discussions. The extension-school program usually bears a close relation to and supplements the work of the county agent. Extension schools were conducted in 30 of the 33 Northern and Western States.

Organization.—The names of from 25 to 50 persons are required on a formal application, which also guarantees local expenses incurred in conducting the schools. As the county-agent work develops, requests for extension schools increase. Programs are usually prepared by the extension representatives of subject-matter departments and are presented to local committees or the county agent for consideration, that they may be adapted to the needs of a community.

The schedule of schools, while often made up in the fall, might be prepared to advantage in the spring or early summer. This would furnish opportunity for the selection of local demonstration material as growing plants, diseased specimens, adaptive varieties, with a view to having them serve an instructional purpose in the extension school.

Local organization.—A local organization representing the community or county farm bureau is formed to secure rooms suitable for instruction and demonstration, to arrange local accommodations for instructors, to provide local demonstration material and equipment, and to give publicity to the work contemplated.

The most successful schools from the standpoint of attendance have resulted from the efforts of a local publicity committee with an active chairman. The extension divisions of a few States employ an advance agent, who goes to the point where the school is to be held and gives attention to the lighting, heating, seating, etc., of rooms provided, arranges for such supplies as may be needed for demonstration purposes, and reports to the director on local accommodations for extension-school instructors.

The local expense is usually paid by the community in which the school is conducted; the plans for defraying such expense include voluntary subscriptions, membership fees, and advance fees accompanying the application. With the exception of one State, the local organizations control the disbursement of money raised in the community.

Instructional staff and programs.—In but few States are there more than two instructors for the agricultural section and two for the home-economics section of each school. In schools offering departmental instructions a greater number of instructors are provided for the agricultural section. One man, representing the extension division, takes charge of all animals and equipment shipped by the college for demonstration purposes.

One major subject generally characterizes the program. A school may be known as a soils, dairy, poultry, farm management, or home-maker's school. With the major subject other related subjects are discussed. Combinations such as the following are found in most of the States: Soils, crops, and dairying; soils, crops, and animal husbandry; farm management, crops, and dairying; cooking, baking, and sewing; and cooking, house furnishing, and sanitation. The choice of combinations is left largely to the communities and to the county agent of the county in which the school is held. In organized counties the program for a school should be made to articulate very closely with the plan of work in the county. In some counties this has been done very effectively.

The discussions, while in part based on the experiences, practices, and results of the season passed, also give consideration to the plans and suggestions for the work of the coming season. It seems that periods of 30 to 45 minutes for discussion and 1 hour for demonstration give best results. Beyond these periods the efforts of the instructor have exceeded the receptivity and interest of most of his auditors. The necessity for simple tests and demonstration of methods as is exemplified particularly in the home-economics schools is increasingly apparent. Action and discussion, chalk and talk, serve to sustain attention and interest. The most important characteristics of a strong extension instructor are ability to appreciate the conditions of those who are being instructed, possession of adequate knowledge to give instruction, skill in manipulation, and daring to cast aside nonessentials without fear of not being considered thorough or of being misunderstood.

Follow-up work.—The fact that the well-fixed practices of adults are not easily overcome or replaced by new ones, makes necessary a closely supervised plan of follow-up work in which personal assistance is given to adults in acquiring and establishing approved methods. At the best organized extension-schools lists are secured

of the members who are specially interested in some phase of the instruction offered or in improved practice recommended. These lists are furnished to the county agent or to subject-matter specialists, and in so far as possible assistance and encouragement are given to the farmers on their own farms in putting into practice the methods advocated at the school. Many specialists who devote their entire time during the winter to extension-school work, devote their summers to follow-up work. This assistance given to interested farmers at the time when needed is most productive of results to the farmer and gives the specialist a stock of information to use at the next winter's schools.

Attendance.—It has been found that the average distance farmers travel to extension schools is about $4\frac{1}{2}$ miles. It seems that schools located nearer than 10 miles apart are not so well attended as when located at greater distances from each other. The attendance is usually better in schools not held in annual succession. In spite of the fact that travel conveniences often center at county seats and other large towns, the greatest interest is manifested in small villages, where the holding of the extension school is the important event of the week.

Home-economics schools.—The increase in the number of home-economics extension schools shows an added interest in this work. The tendency toward lessening the number of instructors in the agricultural schools in a few States has led to an increase in the number of schools. In many States home-economics or home-study clubs have been formed to continue some features of work done in the extension schools. Such clubs have in some instances aroused sufficient interest to secure a farm home-demonstration agent, whose work would stand in the same relation to the home-economics extension schools as that of the county agent to the agricultural schools. The home-economics schools have everywhere been characterized by demonstrations in sewing, cooking, baking, etc., accompanied by simple tests to illustrate principles. It appears that the results of girl's clubs, and home-economic schools are having immediate effect upon methods of baking, canning, cooking, and serving foods. The presence of many young women and girls in the home-economics schools reduces the average age in these schools from three to five years below that of the agricultural schools and indicates an interest by those who are in a period of life in which methods are more easily acquired.

Farmers' week.—Farmers' week is a feature of extension-school work conducted at the State college of agriculture. Practically all extension activities within the State are suspended and the program of lectures and demonstrations at the college is made the center of interest. The sessions are held usually at some period in the winter when little or no college instruction is being given to students.

The incidental meetings of persons from distant parts of the State make of farmers' week a clearing house of methods in agriculture and home economics. The inspiration that comes from assembling at the State institution and from personal touch with lecturers and demonstrators equals, if it does not excel, the immediate results of instruction.

Field operations are shown from moving-picture films, meat-cutting demonstrations are made on the butcher's block, fruit and eggs are packed as the retail market demands, rations for the dairy cow are figured by the farmer with the aid of an assistant, poultry and other live stock, corn, and fruit are judged by contestants.

Agricultural and home-economics conventions usually assemble for one or more days during this week, and receive the benefit of increased interest from numbers and sometimes from a much-increased membership. The general program of evening lectures and songs contributes to the acquisition of information that vitalizes rural life.

BOYS' AND GIRLS' CLUB WORK.

Cooperative relations and organization.—The total number of State leaders, assistant State leaders, district, and county leaders cooperatively employed for the direction, instruction, and supervision of this work was, on June 30, 1915, 89 men and 51 women. Volunteer club leaders to the number of 4,367 were secured for the direction of local club groups during the year. These leaders are specialists in the organization of clubs and club projects. They include county superintendents of schools, school-teachers, members of womens' organizations and clubs, members of breeders' and growers' associations, members of granges, business men, religious organizations leaders, local pastors, and interested citizens. Through such leadership large numbers of club members were handled and better organization and direction of the work was secured.

Thirty per cent of the total enrollment in the boys' and girls' work was not in attendance at the public schools and was not being reached by the school organization. The leaders cooperate with the public schools and other educational institutions within the State in the organization of the club groups. Schools having agricultural or home-economics teachers employed by the year cooperate with the State leaders in charge of the work by making the agricultural or home-economics teachers local leaders of the community clubs. In some cases the extension division of the State agricultural college cooperates with the boards of education and the United States Department of Agriculture in the employment of the agricultural teacher for the summer months. This plan of cooperation with the schools has proven practicable and has offered satisfactory vocational training



FIG. 1.—A FIELD MEETING OF CLUB MEMBERS WITH BULLETINS AND CIRCULARS IN HAND, LEARNING HOW TO DO THEIR HOME-PROJECT WORK.



FIG. 2.—A CORN-CLUB BOY WHO INVESTED HIS NET PROFITS FROM THE CORN-CLUB ACRES IN A PURE-BRED GUERNSEY COW.

in agriculture and home economics. It has made strong leaders available at a small cost. For the club year 1916, 28 States cooperated with the United States Department of Agriculture in the employment of 52 State and assistant State leaders on full time, and 108 district or county leaders on part time. Sixty-five per cent of the counties in the North and West have organized club groups.

Administration.—The State club leader has charge of the project under the extension director of the State agricultural college and is assisted by from one to four persons, who perfect the local organization and secure cooperation throughout the State. The State leader and his assistants cooperate with the subject-matter departments in the preparation of follow-up instructions, prepare plans for organization, conduct leader training schools, and assist in field work in organizing clubs, in giving demonstrations, in conducting exhibits, and in fact do all the work with the boys and girls except that required of a specialist in the various lines. Each State leader selects a number of projects for his State, the number varying from 3 to 19, with an average of about 9. During the year the colleges furnished 1,047,205 pieces of printed and multigraphed matter to the local clubs for instruction in the work. This was supplemented by 1,036,401 pieces of literature from the United States Department of Agriculture.

Paid cooperative leaders in charge of the work visited 13,398 club members and club plats, conducted 1,469 home-canning demonstrations, and 4,695 demonstrations in corn, potato, poultry, cooking, pork, and gardening work. They conducted 765 community fairs and festivals for the purpose of exhibiting club products, training boys and girls in judging farm animals, grains, vegetables, and fruit, and in training demonstration teams in various enterprises. One hundred and sixty-seven training schools for local leaders were conducted. Nineteen State leaders have perfected cooperative agreements with the departments of education and county superintendents of schools for the direction and supervision of the work. The leaders are organizing the work with a view to making this extension project permanent, practical, and instructive.

Results.—In addition to the work at home and on the farm the club groups had regular meetings once or twice a month during the year. They also attended extension schools, short courses, field meetings, and public demonstrations that were especially planned for the instruction and direction of members in club work. Boys' and girls' club work has helped to make instructions in the schools more practical and has given training in cooperation which has aided in developing the social life of the rural communities.

Club members received definite personal leadership, specific direction through printed follow-up instructions on each project, and

agricultural training at field meetings, at extension schools, and by personal visits to club plats. Special training was also given to demonstration teams and judging teams. The fairs and special exhibits have proven of unusual benefit. Club members and communities have thereby been encouraged to produce a better grade of products. These exhibits have also served as schools of instruction for the training of club members, local leaders, and rural school teachers in the conduct of club work. The net profits of club work during the past five years is now paying tuition and subsistence of 102 boys and girls who are at present in attendance at normal schools, colleges, and universities.

The club work is proving an effective agency in making the boys and girls interested in rural development. Such work is becoming so general and permanent that prizes and premiums are becoming of secondary importance in its development. Boys and girls are becoming members of the clubs for the training that it gives and the profits they receive from well-directed work. The club work is training a large and enthusiastic group of demonstrators that will in time become members of the farm bureau and supporters of the county-wide extension work. The State leaders are now planning four-year projects. With an increased number of cooperative leaders it will be possible to organize these four-year projects in such a way that the completed work will secure credit at the higher educational institutions in connection with courses of agriculture and home economics.

There has been an ever-increasing and very general interest in the boys' and girls' work, which has made it possible to get the maximum results for money invested. This is one of the reasons for the low per capita cost of the work. There was a marked increase during the year in the number of field demonstrations held, training schools conducted, fairs and festivals held, and in the number of teams trained in demonstration work. These teams demonstrated various projects at fairs, grange meetings, agricultural meetings, farmers' institutes, and women's clubs. Demonstrations were given in the canning of fruit, vegetables, soups, and meats, special attention being given to the use of surplus products and the elimination of waste on the farm and in the kitchen, as well as in the making of poultry devices, killing, dry-picking, caponizing, and carving of fowl, and in a similar way other project work has been demonstrated. The club work has brought about a marked improvement in fairs and exhibits held throughout the States, and in addition to the "still" exhibit at these fairs there has been added the demonstration team and the judging work, making the fair a school of instruction for the training of children and adults in better practices in agriculture and home economics.

Of the 198,000 club members enrolled during the year, 85,324 completed all work and made complete reports to State leaders. These reports show products valued at \$922,766.73. The members reported a production cost of \$332,836.07. The total cost of supervision and direction of the work was \$157,304.75. The average cost per enrolled club member for the work during the 12 months was 79 cents. The average per capita cost for those who kept complete records, exhibited products, made complete reports, and did everything required was \$2.33.

Data for the different club activities are given in the following table:

Summary of results secured by club members.

Projects.	Num-ber of mem-bers com-pleting work.	What they produced.	Projects.	Num-ber of mem-bers com-pleting work.	What they produced.
Corn clubs.....	3,918	523,110.80 bushels.	Beef clubs.....	303	272,037.20 pounds.
Potato clubs.....	2,130	119,328.32 bushels.	Do.....	303	448 animals.
Garden clubs.....	27,446	99,028.79 dollars.	Pig clubs.....	3,174	728,411.96 pounds.
Canning clubs.....	7,903	201,305.5 quarts.	Do.....	3,174	5,300 animals.
Sugar-beet clubs.....	208	4,232,706 pounds.	Bread clubs.....	2,368	122,898 loaves.
Alfalfa clubs.....	146	5.6 tons.	Sewing clubs.....	3,646	19,401 pieces.
Poultry clubs.....	2,646	40,678 chicks.	Handicraft clubs....	149	872 pieces.
Do.....	2,646	32,907 dozen eggs.			

Outlook.—The work has grown and better results have been secured during the past year because a greater number of trained leaders were available in the States and the club members felt that they had a personal responsibility for the work. There is a marked demand for paid cooperative leaders in the older organized counties as well as in those more recently organized, and in order to take care of the increasing number of applicants for membership this leadership should be provided.

SPECIALISTS.

In order to carry to the farmers of a State practical knowledge accumulated by the college and the results of experiments which have determined the best practices, extension specialists have been employed by the extension divisions to extend this information with a view to establishing the practices on farms. These specialists are directly responsible to the heads of subject-matter departments which they represent for subject-matter thought. Their movements within the State are determined by the chief administrative officer of the extension division.

Specialists have been employed for lines of work which seemed to be of most immediate importance in the State or which would articu-

late most closely with the plan of work being developed by the county agents. Additional specialists have been employed as the need for them was apparent and as money was available. In the most important subjects persons have been employed for full time. In other subjects the duration of service is from a few weeks to six months.

In counties having agents the specialist usually assists the agents in instructing farmers in the control of diseases of plants and animals, in the conservation of plant food, rotations and crop improvement, and in the production of dairy, poultry, vegetable, and live-stock products; in counties not having agents, the specialists give assistance to persons making inquiry. This phase of work by specialists has proven least satisfactory, from the fact that there is no local oversight such as can be rendered by a county agent.

During the winter season specialists are engaged in extension schools from three to five days per week. In this work more detailed discussions are presented than at single field or barn demonstrations. At these schools the problems of a group of farmers are made the bases of discussion and demonstration. Counties having agents have in some degree articulated the program of such schools with the county agent's plan of work for the year. In the absence of the specialists, county agents have looked after follow-up features.

Specialists not infrequently assist local agricultural organizations or county agents in conducting campaigns for disease control, formation of cow-testing associations, silo building, breeding associations, seed-corn selection and testing, etc.

It is planned to cooperate with the State specialists by employing specialists to represent the various bureaus of the United States Department of Agriculture. In the use of such specialists the information now available in the Federal Agricultural Department may in part be carried by the living agent directly to the States; a study of methods used by State extension specialists may also be made with a view to transmitting successful methods of extension from State to State.

The following summarized reports cover the most important lines of work done by State extensions:

Animal husbandry.—Projects in animal husbandry were conducted in 12 of the 33 Northern and Western States. This work is done largely in cooperation with the county agents. Nearly \$37,000 was expended in this work.

Extension work in animal husbandry for the past year included chiefly the keeping of herd records, better feeding and breeding, and the prevention of animal diseases. Plans were furnished for stock barns, hog houses, and self-feeders for swine. Farmers were encouraged to use pure-bred sires, and in one State a "better-stallion day" was inaugurated. Much work was done toward the prevention

of animal diseases, attention being given to the vaccination of cattle as a protection against blackleg, and the destruction of carcasses of animals that had died of disease.

Poultry.—Projects in poultry were conducted in 12 of the 33 Northern and Western States. Nearly \$30,000 was expended in this work.

The chief lines of work given attention were the construction and remodeling of poultry houses, poultry breeding, keeping poultry records, the control of white diarrhea, poultry-farm management, and exhibits at fairs and poultry shows. Attention was given to the marketing of poultry and poultry products in 3 of the 12 States. In one State two egg-marketing associations were formed, and in another 10 egg circles were in operation, \$18,000 worth of eggs being shipped by these circles. The principal line of poultry work in five States was the construction and remodeling of poultry houses. Attention was also given to the separating of layers from nonlayers and the elimination of roosters.

Dairying.—Projects in dairying were under way in 27 of the 33 Northern and Western States, and the dairy-extension work was done largely in cooperation with county agents and usually as a part of the county-extension program.

The chief lines of work given attention were cow-testing associations, dairy-herd records, dairy-cattle breeders' associations, the construction and remodeling of dairy buildings, and creamery management. Dairy specialists and county agents organized 115 cow-testing associations and assisted 103 other associations. These associations provided means whereby a group of farmers may obtain production records on their animals at a small cost, and also with the records thus obtained they may have very usable technical advice on problems of herd management left with them each month. In communities where the scarcity of cows or the lack of interest did not permit the organization of a cow-testing association, many farmers were induced to keep records of their dairy herd and send these records either to the county agent or to the dairy specialist for monthly examination.

The work of the cow-testing association is usually followed by a desire for better stock, and the dairy-cattle breeders' association frequently follows the active operation of cow-testing associations, though the breeders' association may include many more farmers than it is possible to include in the cow-testing association. Four breeders' associations were organized during the year, and assistance was given to 42 associations already in operation.

As more attention is given to dairying it is frequently found advisable to add buildings or remodel those now on hand. To meet the calls thus received assistance by means of advice, rough and detailed plans, and occasional supervision of the construction was

given chiefly in the construction, remodeling, and repair of dairy buildings, cream houses, and silos.

In nine States a project calling for assistance to creameries was in operation, as it has been found that some of the creameries need expert assistance in some of their problems and management in order to provide farmers with the best possible market for dairy products. This work is illustrated by the assistance given 11 creameries in one State. The managers and directors of these creameries were assisted in determining methods to be used, and rearrangement of methods of machinery now on hand so as to increase the quality of the product and amount of overrun and net a profit to the creamery. These things did much to improve the market for and prices to the farmers. Of these 11 creameries, 5 increased their annual profits \$12,450. Two of the other creameries were ready to close their doors, and these were assisted to get on a paying basis.

In 23 of the 33 States dairy-extension work was conducted in co-operation with the Dairy Division of the United States Department of Agriculture.

Soils and crops demonstrations.—During the year just closed eight States had definite projects relating to soils.

The work included in these projects covers such a wide range of subjects that it does not readily lend itself to grouping but may be illustrated by the work of a few States. In Ohio, 111 fertilizer demonstrations were made, and the field meetings held to observe and discuss the results were attended by 1,775 persons. In Wisconsin, 28 fertilizer demonstrations were held on sandy soils, 19 on marshy soils, and 22 on clay and silt-loam soils. On the marsh soils potatoes yielded 64 bushels an acre without fertilizer and 228 bushels with acid phosphate and potash as fertilizer. In Utah the dry-farming specialist is demonstrating how to develop a homestead into a paying farm. In Oregon the pioneer methods of exhausting soils are being replaced through demonstrations of crop rotations suited to maintain soil productivity and to increase profits. In Nebraska 12 drainage systems were installed under cooperative projects and help given with 30 other systems. In Kansas the soil specialist attended 16 five-day schools during the winter. The following summer a number of farmers attending each extension school were visited to determine local soil problems and to conduct demonstrations to meet these problems. Humus and nitrogen were the chief needs, and crop rotations were recommended to supply them. In Indiana over 60 per cent of the 3,000 samples of soil tested were found to be acid, and 50 demonstrations were conducted with lime for clover. In Michigan many soil analyses were made at the college on the request of county agents as a basis for establishing lime

and fertilizer demonstrations. In New York demonstrations were made in constructing drains by machines and in laying tile.

With reference to soils and crop demonstrations, the county agents report the work done which is shown in the following table:

Work done in relation to soils, fertilizers, and fertility.

Number of agents reporting.	Kind of work done.	Amount.
242	Crop-rotation systems planned and adopted.....	3,182
231	Drainage systems planned and adopted.....	885
219	Acres included in these drainage areas.....	123,398
31	Irrigation systems planned and adopted.....	194
30	Acres included in these irrigation areas.....	19,829
127	Farmers reinforcing the manure with acid phosphate or ground rock phosphate..	2,202
173	Farms using chemical fertilizers on suggestion of the agent.....	7,863
152	Tons of chemical fertilizer so used.....	22,096
56	Farms on which the chemical fertilizers were home mixed on suggestion or under the direction of the county agent	1,885
60	Tons of such home-mixed fertilizers used.....	5,650
272	Number of farms on which the agent tested the soil for acidity.....	10,605
197	Tons of lime or limestone used.....	210,287
122	Acres of hay land top-dressed (straw, manure, or fertilizer).....	33,717
69	Acres of permanent pasture top-dressed (straw, manure, or fertilizer).....	12,546
143	Acres of clover and other legumes plowed under for green manure.....	94,718

These figures indicate that the county agents have given information and made demonstrations relating to soil productivity and soil management in a large number of instances.

Rural engineering.—Projects in rural engineering were conducted in six States, and in one State work in rural engineering was conducted under the specialist project. Nearly \$14,000 was expended on this project.

This line of extension work consisted chiefly of the planning and installation of drainage systems; the planning and rearranging of farm buildings; the supervision of the construction of bridges, silos, sewage-disposal systems, and water systems. In one State 425 blue prints and plans for 1,500 self-feeders for hogs were furnished, and in another State 9,652 blue prints were issued and sent throughout the United States.

FARM-MANAGEMENT DEMONSTRATIONS.

Farm-management demonstrations were continued during the year throughout the Northern and Western States by the State colleges of agriculture in cooperation with the United States Department of Agriculture. Within the year 4 additional States took up the work, making a total of 25 States now engaged in conducting farm-management demonstrations. In addition to the 116 counties in which demonstrations were in progress a year ago the agents in 65 other counties became familiar with the work during the year and are now extending assistance of this nature to the farmers in their

own counties. The farm-management demonstrators devote their time to helping the county agents and other local leaders in this work.

The farm-management demonstration work is bringing home to farmers in a concrete way the need of farm accounts as a means of studying and improving their own business. At the end of the year 6,247 farmers had begun keeping farm accounts, and analyses had been made of the business of 8,519 others as a preliminary to starting farm accounts.

In several States the farm-management demonstration work has been made a major project in the work of every county agent in the State. Such demonstrations and local records are proving of value in giving to the county agent and the farmer a true insight into local agricultural conditions and the lines of agriculture that need fostering and strengthening.

The work of the year is summarized in the following table:

Farm-management demonstrations conducted during the year ended June 30, 1916.

State.	Number of farmers assisted in analyzing farm business.			Number of farmers keeping farm accounts.	Number of farmers adjusting business to increase net income.
	One year.	Two years.	Three years.		
Colorado.....	572	129	.....	158	41
Connecticut.....	511	108	.....	171	77
Delaware.....	190	81	.....	86	83
Illinois.....	198	82	.....	543	.....
Indiana.....	965	231	.....	241	431
Iowa.....	522	174	.....	319	4
Kansas.....	1,063	300	.....	278	38
Maine.....	493	130	.....	39	76
Massachusetts.....	753	293	143	143	69
Michigan.....	783	174	16	845	55
Minnesota.....	776	249	52	857	83
Missouri.....	116	.....	.....	16	2
Montana.....	460	42	.....	28	43
Nebraska.....	755	287	.....	834	51
New Hampshire.....	551	114	.....	345	193
New York.....	2,013	491	50	104	69
North Dakota.....	11	.....	.....	.....	.....
Ohio.....	816	25	.....	196	16
Oregon.....	331	35	.....	76	53
Rhode Island.....	51	.....	.....	.....	.....
South Dakota.....	148	.....	.....	51	.....
Utah.....	337	256	.....	366	330
Vermont.....	477	97	.....	223	179
Washington.....	567	259	.....	6	56
Wisconsin.....	484	174	.....	326	144
Total.....	13,993	3,731	261	6,247	2,093

OUTLOOK.

As relationships become more clearly established and the county-agent system develops, it becomes apparent that the most efficient plan of organization is that one which recognizes and makes use of the county agent as the administrative officer for all lines of extension work within his county. As projects are prepared for

the year, the work of the specialists is closely correlated with that of the county agent with resulting benefit to the work of both.

What has long been evident in research work is becoming equally evident in extension work—i. e., that the most efficient work can be done only by a man whose entire time practically is devoted to one line of endeavor. The eventual organization of extension work for the greatest efficiency, then, seems to be found where there is an extension director in charge who devotes his entire time to a study of the needs of the rural people of the State, and the development of plans by which the needs of these people may be most effectually provided for; where there is a county agent in every county; where boys' and girls' club work has adequate county leadership and is closely coordinated with the public-school system; where there is a staff of trained subject-matter specialists with headquarters at the State agricultural college, working largely with the county agents and club leaders and through organizations developed by the county agents and club leaders. Indications are that in the development of extension work with farm women, the home-demonstration agent or woman county agent will be as important a factor as the man county agent has been in the development of the work with men.

The value of extension teaching must be measured in actual results in improved practice on the farm and in the home. The county-agent system for men, women, and young people makes possible not only organization for work with the county, but provides for efficient follow-up work, which is the real key to success. With plans developing for more efficient organization in extension work and greater recognition of the principle that probably every agricultural community contains within its own bodies leadership adequate for solving its own problems, providing that leadership is awakened and set to work, the outlook for the future of extension work is all that can be hoped for.

STATE REPORTS.

ARIZONA.

Division of Extension, College of Agriculture, University of Arizona, Tucson.

STANLEY F. MORSE, *Director*, resigned August 15, 1916.

[E. P. TAYLOR, *Director*, appointed Oct. 1, 1916.]

Organization and administration.—Extension work continued under the same plan of organization as last year. During the year one county agent resigned, and specialists in home economics and in club work concluded their temporary appointments. Two county agents were appointed and arrangements were made that the United States

Department of Agriculture specialist in charge of investigational work with Egyptian cotton devote one-fourth time to extension work.

Publications.—During the year eight publications were issued. A weekly press letter was sent to the papers of the State, several daily papers regularly using a portion or all of the material. An arrangement was made with the Post Office Department whereby postmasters were allowed to post the weekly press letter on their bulletin boards. Several farmers' organizations also used the weekly press letter regularly in this way.

Finances.—The following funds were available for cooperative-extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$11, 715. 47
Smith-Lever, State.....	1, 715. 47
United States Department of Agriculture, farmers' co- operative demonstration work.....	4, 273. 89
State appropriations.....	2, 407. 96
County.....	4, 463. 97
Other sources within the State.....	1, 170. 64
Total	25, 747. 40

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, extension schools, boys' and girls' club work, live-stock extension work, and cotton specialist. Funds from the United States Department of Agriculture were used in the support of the following projects: County-agent work, club work, and Egyptian cotton extension.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 2; June 30, 1916, 4; funds expended, \$9,457.70.

The extension director acted as county-agent leader. Each county in the State had a farm-improvement association with a number of locals, which cooperated in support of the county-agent work. Owing to the sparse settlements in the State and the large area of the counties, the agents worked largely with these locals and individual farmers.

The main lines of county-agent work were as follows: (1) Production of home supplies, including vegetable gardens, home fruit gardens, poultry, and dairy products; (2) crop improvement, including corn seed selection and improved varieties of corn, improved varieties of potatoes, wheat improvement, and the introduction of new crops; (3) crop rotation; (4) live-stock improvement, including the introduction of better sires and better feeding methods; (5) introduction

of better dairy cattle; (6) farm management; (7) grasshopper control; and (8) introduction of silos.

Two hundred and twelve demonstrations were conducted at which 129 meetings were held, attended by 2,095 people. The most important demonstrations were those relating to horticulture, cereal crops, live-stock improvement, soil improvement, control of rodents and other animal pests, boys' and girls' club work, and rural engineering. In Cochise and Santa Cruz Counties a pit-silo campaign was conducted, as a result of which a group of farmers purchased a carload of cement. A total of 21 silos was built in the county. This brought about better cooperation among the farmers and assisted materially in improving feeding methods. A number of marketing and purchasing associations were organized by the county agents. One demonstration with improved selected seed corn resulted in a yield of $66\frac{1}{3}$ bushels per acre, where the yield on an adjoining field was 35 bushels per acre. As a result many farmers of that district are using selected improved seed corn. Much of the home supplies were shipped into Arizona from Colorado. The county agents have endeavored to teach their farmers to grow a home vegetable garden, a home fruit garden, to keep poultry and dairy cows. In Navajo and Apache Counties demonstration gardens were conducted in every community. These demonstrators kept records and reported variously from one-fourth to one-half acres, with receipts of from \$50 to \$325 per acre. It was estimated that more than 8,000 quarts were canned for winter use from these gardens.

Home economics.—Work for farm women was chiefly confined to single lectures. In an attempt to acquaint farm women of the State with the work which might be done in home economics, a four-month project was undertaken on January 1, 1916, in an attempt to reach the women through meetings conducted under the auspices of farm-improvement associations and women's local organizations. Twenty-four introductory meetings were held, which resulted in stimulating interest so that a two months' project in home-demonstration work for the benefit of ranch homes in Maricopa County was undertaken on May 1, 1916.

Extension schools and institutes.—Four extension schools were held during the year, with an attendance of 589. The farmers' institutes as formerly conducted are being supplanted by the extension schools, having longer sessions and more demonstration work. A farmers' short course was held at the University of Arizona, covering a period of 11 days, in January, 1916. Demonstrations were given in both agricultural and home-economic subjects. The total registration in the agricultural course was 128 and in the home-economics course, 35.

Boys' and girls' club work.—Club work was conducted by the State leader in charge, with one temporary assistant during part of the year. The leaders were in direct cooperation with the county agricultural agents, who gave very definite subject-matter instruction and leadership to the boys and girls. In addition to this, county superintendents of schools, departments of education, farmers' associations, and business men have, by means of prizes, public commendation, and definite local leadership, given considerable help to the work.

The State leader outlined 6 agricultural and home-economics projects for the study and direction of 74 club groups within the State. These groups contained a total enrollment of 709, of which 246 completed all work required. Twenty-eight per cent of the total enrollment in the work were also members in 1915. Ninety-six per cent of the total enrollment was secured by unpaid local leaders. Sixty per cent of the total results at the close of the year was secured by the county agricultural agents working in cooperation with unpaid volunteer leaders. The State leaders conducted 43 canning demonstrations during the year, held 6 field meetings, 6 district fairs and festivals, 3 local fairs, made exhibits at 2 county fairs, and made a State-wide exhibit at the State fair, visited 556 club plats and members during the year, and furnished as follow-up instruction 18,231 pieces of printed matter.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 1 club, 13 members, reporting 13 acres, producing 530 bushels; cotton, 9 members, reporting $4\frac{1}{2}$ acres, yielding products estimated to be worth \$834.68; canning, 7 clubs, 610 members, reporting 12,855 quarts canned food and 1,986 quarts of jelly; poultry, 2 clubs, 39 members, reporting a production of 552 dozen eggs; pig, 105 members, reporting a production of 13,829 pounds of pork.

Live-stock extension.—With the assistance of the Maricopa County agent, the Fowler Farm Improvement Association (a farm bureau), and the dairy specialist from the United States Department of Agriculture, two cow-testing associations were organized, and plans for a third are under way. In addition to the cow-testing association work, 17 dairymen were induced to keep individual herd records. During the year a State dairymen's association and a swine-breeders' association were organized. Attention was given to the management of range bulls in an effort to reduce the mortality among calves and secure uniformity in time of birth. Ranchmen were induced to destroy the carcasses of animals which died of disease, thus preventing the spread of disease. The live-stock specialist acted as live-stock judge at four fairs and assisted farmers in purchasing 27 pure-bred hogs, 17 beef bulls, 21 dairy bulls, and 56 grade heifers.

Cotton extension.—Cooperative arrangements were made with the Bureau of Plant Industry of the United States Department of Agriculture for the specialist who has been conducting investigational work in cotton grading for several years to give one-fourth time to extension work. As a result of the investigation and extension work, the Yuma variety of long-staple cotton was planted on about 7,000 acres, and select Pima strain of cotton was planted in seven places for pure-seed production. These demonstrations, handled under the supervision of the specialist, have fully demonstrated the superiority of the Pima strain in length and quality of fiber. The coming of the Egyptian-cotton industry to the Salt River Valley has proved of agricultural significance not only to that section but to the State in general, for, besides the revenue to be secured from the crop itself, the fact that cotton is a cultivated crop, so much needed in the rotation planting of the valley, will tend to the improvement of general agricultural methods. The specialist made 347 visits to demonstrations, 242 other visits, held 41 demonstration meetings, with an attendance of 177, and held 23 other meetings, with an attendance of 195.

OTHER EXTENSION WORK.

State fair.—Under this project exhibits were made at the State fair and 11 other fairs, the extension service taking charge of and displaying the agricultural and live-stock exhibits of the experiment station. Assistance was also given in the classification and arrangement of agricultural-fair premium lists.

Special advisory extension.—This project made provision for the miscellaneous calls for speakers, advice, and assistance which were so constantly coming to the extension service. The work was handled principally by members of the staff of the agricultural experiment station. College of agriculture staff members other than regular extension workers also answered emergency calls under direction of the extension service seven times throughout the year, at which time 669 people were addressed at meetings.

OUTLOOK.

The extension director, acting as county-agent leader, organized the extension work so that the agents were recognized as a part of the college extension staff directly responsible for all extension activities in their counties. While the work of the agents was largely with individual farmers, the locals of the Arizona Farm Improvement Association furnished opportunity for group work, which was used to advantage. Actual field demonstrations proved effectual in get-

ting results. This was especially marked in silo construction and in the planting of selected improved seed corn. The boys' and girls' club work has received the support of public schools, farmers' associations, and business men. The county agents gave active assistance in promoting the work and in securing and cooperating with local volunteer leaders. The preservation of food by canning was a popular feature of the work, and made available for home use or for market products which would otherwise have been largely wasted. The introduction of the Egyptian long-staple cotton as an industry of the State is likely to prove of great economic importance, for it not only introduces a new crop but provides for a cultivable crop in the rotation.

CALIFORNIA.

Division of Agricultural Extension, University of California, College of Agriculture, Berkeley.

W. T. CLARKE, *Director*.

Organization and administration.—No important changes were made during the year. There were a few additions to the number of workers and a few changes in academic titles by promotion. The director of extension is responsible to the dean of the college of agriculture. The director of extension has two assistants in the general office and field work of his division. One of these carries the title professor of agricultural extension and assistant superintendent of farmers' institutes, the other the title assistant professor of agricultural extension. In immediate charge of county agent and club work is an associate professor of agricultural extension. The home-economics work is in charge of an instructor in agricultural extension. The county agents, according to appointment, are instructors, assistants, or assistant professors of agricultural extension. Men known as assistant in agricultural extension have been employed during the year to assist in county-agent work. Their work is done in connection with and is supplementary to that of the county agents; but they work under the immediate direction of the county-agent leader, work on projects approved by him, and actually function as his special assistants. Assistant professors in the extension division and those of higher academic rank have the right to sit and take part in meetings of the department and the college of agriculture. By action of the regents they are given academic title and rank, but their assignment to work is made by the professor in charge of the division, with the approval of the professor at the head of the department.

Publications.—No publications were issued by the extension division, but use is made of bulletins and circulars of the experiment

station and publications of the United States Department of Agriculture. The extension division furnishes announcements of plans and accomplishments to a news editor connected with the office of the president of the university, and he secures publicity for the work through the newspapers of the State.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$21, 037. 45
Smith-Lever, State.....	11, 037. 45
United States Department of Agriculture, farmers' cooperative demonstration work	8, 624. 72
United States Department of Agriculture, Bureau of Animal Industry.....	1, 250. 00
College	15, 269. 77
County	26, 000. 00
Total.....	83, 219. 39

Smith-Lever funds were used in the support of the following projects: Administration, county agent, home economics, and club work. Funds from the United States Department of Agriculture were used in the support of the following projects: County agent and club work.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 11; June 30, 1916, 13. Funds expended, \$57,488.30.

The work was continued as last year with a county-agent leader in charge. Each county has a farm-bureau organization supporting the county-agent work. Groups of farmers in the various communities in the county cooperate locally with the county agent through what are known as farm-bureau centers. There are 175 of these centers in the State. During the year three assistant county agents were appointed, whose duty is to assist the county agents in developing any particular project on which they need help. They are sent to a county for from three to six weeks' work when help is most urgently needed. The farm bureaus have developed departments whereby farmers are united for certain particular lines of work, as cow-testing associations, etc.

The main lines of the county-agent work are written in project form and are as follows: (1) Dairy improvements, (2) spraying and pruning, (3) gopher and squirrel control, (4) fertilizers, (5) liming, (6) alfalfa introduction, (7) wheat, and (8) cover crops. Besides

these main lines of work there were numerous other projects relating to one or more counties. This has been necessary because of the very great diversity of climatic and soil conditions within the State.

Twelve hundred and two demonstrations were conducted, at which 241 demonstration meetings were held, with an attendance of 7,098. These were, for the most part, conducted along the lines of soil improvement, horticulture, forage crops, and live-stock diseases.

Dairying has been an important line of improvement work. In Imperial County two cow-testing departments of the farm bureau (cow-testing associations) were organized. One hundred and forty dairymen are represented in these two associations, with approximately 4,000 cows. Five such associations were organized within the State, with a total of 13,376 cows to be tested. The agents have tested 3,029 cows for individuals not members of associations. There were 3,476 cows tested for tuberculosis by the agents or on their suggestion, and 4,219 cattle were treated for blackleg. In Stanislaus County a campaign was conducted through the various farm-bureau centers to induce the building of more silos. A survey made in 1915 showed 130 silos in the county. As a result of the campaign the number of silos was increased to 389. Much damage is done in California by rodent and insect pests. In Ventura County the campaign was carried on in 1915 through the farm-bureau center for the eradication of ground squirrels. In 1916 the campaign was renewed, and 28½ tons of squirrel poison were sold to farmers at cost, with an approximate saving on materials purchased of \$6,000. Reports show that approximately 60 per cent of the ground squirrels in the county were killed. In Imperial County the grasshopper campaign, which was started early in the season, resulted in the destruction of the insects on 15,000 acres. About 90 per cent of this acreage was in alfalfa. One man, after attending a demonstration, bought and applied poison to 500 acres. Pruning and spraying and cover crops were the principal lines of work in orchard management conducted by the agents. A total of 573 orchards were managed according to the agents' suggestion, with a total of 309,736 trees.

Home economics.—The leader of this project had the help of one assistant the latter part of the year. The California Federation of Women's Clubs and the staff of the State and county libraries also cooperated with her in disseminating information about farm home-demonstration work. In 36 of the 58 counties of the State lecture demonstrations were given on the canning of meats and soups, jelly making, and the proper preparation of meals. Three mother-daughter canning clubs were organized. The instructor was equipped with simple models of the fireless cooker, iceless refrigerator, septic tank, and serving wagon. In Napa County a campaign was conducted to introduce septic tanks, and in six weeks 65 such

tanks were installed; altogether 111 were placed in Napa County last year. Over 8,000 housekeepers attended the demonstrations.

As an aid toward greater social advantages among farm women in various localities definite attempts were made by the home-economics workers to promote a neighborly spirit between the different groups organized for the purpose of studying farm home problems.

Boys' and girls' club work.—The extension work with boys and girls was promoted chiefly through clubs under the leadership of one State leader and three assistants.

Nine projects were undertaken, and 103 clubs were organized, with a membership of 1,157, which was given definite leadership and follow-up instructions. Of this number, 469 completed all the work. Thirty-eight per cent of the membership were enrolled in the work in 1915. No paid local leaders were used in the direction of the work. Most of the local direction of the work was done either by county agricultural agents or volunteer leaders. Field demonstrations to the number of 3,971 were conducted during the year, 103 local club fairs and festivals were held, 3,971 club plats were visited, and a total of 5,785 pieces of club literature was furnished to the club membership. Eighty per cent of the local unpaid leaders were teachers and school supervisors.

One transcontinental tour of champions of various clubs was conducted by the leaders for educational and agricultural purposes. The trip was made by way of the northern route from West to East, returning by way of the southern route, and consumed a period of about four weeks. The expenses of the trip were paid by the interested public of the communities in which the champions lived.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 5 clubs, 23 members, reporting 23 acres, producing 810 bushels of corn; potatoes, 20 clubs, 123 members, reporting 20.8 acres, producing 3,302.54 bushels of potatoes; garden, 3 clubs, 12 members, reporting 480 square rods, producing products estimated to be worth \$759.21; garden and canning, 3 clubs, 20 members, reporting 106 $\frac{2}{3}$ square rods, yielding products estimated to be worth \$201.84; sugar beet, 2 clubs, 32 members, reporting 16 acres, producing 133,080 pounds of sugar beet; bean, 70 members, reporting 17 $\frac{1}{2}$ acres, yielding products estimated to be worth \$871.50; poultry, 1 club, 5 members, reporting production estimated to be worth \$82.50; pig, 158 members, reporting a production of 34,785 pounds of pork; sorghum, 58 members, reporting products estimated to be worth \$1,885.05.

Work was quite largely confined to the organization and direction of clubs in connection with the high schools of the State and with boys of high-school age. No definite club-project work was

undertaken with the elementary grades and the girls of either elementary or high-school standing. Plans have already been perfected in the State for the employment of 10 agricultural teachers as district and community leaders of the boys' and girls' work during the entire year with special reference to the leadership and direction of club members and groups throughout the summer vacation period. These leaders are to devote a considerable portion of their time to the organization and promotion of clubs with the boys and girls of the elementary grades, and also in the organization of the girls as well as the boys of the high-school grade. Work with pig clubs was conducted in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture.

OTHER EXTENSION WORK.

Farmers' institutes.—Farmers' institutes are held in counties not having farm bureaus, and are conducted under the immediate supervision of the head of the extension division. Such local agencies as granges, farmers' unions, agricultural clubs, and commercial and other organizations are made use of in arranging for and conducting these meetings. During the year, 292 one-day institutes were held, 3 two-day institutes, and 1 three-day institute. There were 384 sessions, with a total attendance of 24,035. These institutes were held in 41 different counties, none of them in counties having county agents.

Under the California plan any division of the department of agriculture may do extension work. A number of them have specialists whose services are freely given to the extension division in the promotion of its plans or to meet the special requirements of independent organizations of farmers. They work with the county agents in conducting special demonstration campaigns and in counties not having farm bureaus; they do lecture and demonstration work at places where conditions seem to warrant the necessary expenditure of time, effort, and money. In addition to the correspondence growing out of the work planned by the extension division, an increasing number of letters are received asking for information concerning crops, agricultural lands and practices, and opportunities for profitable farming. These letters are carefully answered in the belief that thus a substantial service can be rendered. A rather extensive consultation service has grown out of the general correspondence work of the extension division. In case of requests for information that can be satisfied only in part by correspondence, personal visits are made to farms for the purpose of studying the problem on the spot and making a special report or holding a personal conference with the farmer. The interested

farmer pays the expenses of the visit and examination. In certain cases these visits are made to aid prospective purchasers in deciding on the agricultural value or adaptability of land. No attempt is made to estimate real estate values, but care is taken to report on the productivity of the land examined and its suitability for the purposes of the prospective owner.

OUTLOOK.

In the organization of the extension staff close relations are maintained with the college of agriculture, the county agents and their assistants all being given academic rank in the college faculty. The close relation of county-agent and club work is recognized by having one State leader for both lines of work. In the farm-bureau centers a plan has been developed by which local communities are reached at definite times and by which local needs are made known. Through the emphasis placed on actual field demonstrations and field meetings and through personal visits farmers are being instructed in an effective way. The employment of teachers of agriculture in the high schools to supervise the local club work during the summer vacation period is resulting in a larger percentage of completed projects. Outside of the counties employing county agents, farmers' institutes have served the purpose of reaching large numbers of rural people. The substantial basis on which county-agent work is being organized; the close coordination of the boys' club work with the public schools, whereby increasing numbers of schools are engaging teachers the year around to aid in the work; the extending work of the college specialists, all indicate a most satisfactory outlook for the extension work of the State. Club work with girls will doubtless be organized in the near future.

COLORADO.

Division of Extension Service, State Agricultural College, *Fort Collins*.

H. T. FRENCH, *Director*.

Organization and administration.—An important change in the administration of extension activities was made effective September 1, 1915, when an extension director was employed who also acts as State leader of county agents. Prior to this time the president of the college had served as acting director. The general organization of the work has continued as last year, with the exception that the assistant director has had immediate charge of farmers' institutes and extension schools in addition to office duties. Cordial relationships have continued between several divisions of the college and

extension division, with the State department of public instruction, and also with the Grange and farmers' union.

Publications.—During the year two bulletins and the annual report of the extension director were published with Smith-Lever funds and two bulletins were published with State funds. These were distributed to about 3,000 people whose names are on the mailing list. During the year a weekly sheet containing timely articles on agricultural subjects was prepared by the various departments of the college. These included 542 signed articles and 25 special extension articles. From November 15, 1915, to June 1, 1916, information available shows that 1,913 inches of material has been printed from these news notes by the local papers of the State.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal.....	\$14, 792. 62
Smith-Lever, State.....	4, 792. 62
United States Department of Agriculture, farmers' cooperative demonstration work.....	9, 443. 33
State appropriations.....	2, 740. 40
County.....	5, 132. 40
Other sources within the State.....	124. 76
Total.....	37, 026. 13

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, boys' and girls' club work, farm management, and farm specialists. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 30; June 30, 1916, 18; funds expended, \$17,870.20.

In a few counties there are farm-bureau organizations supporting the county-agent work, and in one county there is a federation of all farmer organizations within the county to support the work of the agent. The agents are aiding in the organization of groups of farmers into farmers' clubs, purchasing and marketing associations, etc., through which they work locally. In all but three counties each agent works in a single county; the agent in the San Luis Valley has territory in five counties, and two agents each have two counties

in their territory. There is a tendency to organize farm bureaus to cooperate in county-agent work.

Much of the work of county agents is written in project form. The nine main lines of work are as follows: Boys' and girls' club work, alfalfa, silos, potatoes, control of insect pests, dairying, pruning and spraying, prairie-dog control, and control of live-stock diseases. Considerable work was done in different counties in the introduction of new crops, such as sweet clover, Sudan grass, etc. A number of agents also devoted much time to control of oat smut.

Three hundred and five demonstrations were conducted, at which 200 demonstration meetings were held, attended by 4,275 people. The most important demonstrations were those relating to forage crops, cereals, horticulture, control of rodent pests, dairying, and the control of insect pests. In Rio Grande County grasshoppers were especially injurious. The county agent with a specialist from the college held three neighborhood meetings to demonstrate the method of poisoning grasshoppers with a bran-mash poison. In addition to these, 174 farm visits were made to advise farmers in methods of control. Twenty-seven days in all were devoted to the campaign. As a result, 20,000 acres of crops were protected, with an estimated saving of from \$3 to \$5 per acre. In Garfield County two carloads of Holstein heifers were shipped into the county from Plymouth, Wis. The county agent interested several bankers, who advanced \$700 each to bring the animals into the State without charging interest on the money until the farmers had selected their individual cows. The two carloads contained 41 high-grade Holstein heifers and 7 pure-bred bulls. In addition to this, the agent conducted a silo campaign in his county to induce the farmers to dig pit silos and to grow forage crops for silage. In La Plata and Montezuma Counties three carloads of high-grade and pure-bred Holstein cows were shipped in. These cows were distributed among 17 ranches, and furnish a foundation for several pure-bred dairy herds.

Home economics.—The present leader of this project took charge January 1, 1916. She has given special attention to the installation of running water in farm homes, the remodeling of kitchens, and the introduction of country-home study work into rural clubs.

Boys' and girls' club work.—Club work was in charge of one State leader with one assistant for the year 1916. The work was carried on cooperatively with county agents, farmers' associations, and business associations with a view to giving the work the supervision, follow-up instruction, and dignity necessary to its success. The members are organized into groups, with the public school as the usual meeting place. A considerable number of volunteer leaders were obtained for the leadership of the local groups. The instruction and

direction of the club members was carried on by means of published follow-up instructions, circulars, letters, personal visits to club plats, field meetings, demonstrations, fairs, camps, etc.

Seven subject-matter projects were used as the motive for the organization of 409 clubs, having a total membership of 2,322, who actually undertook the work, out of which 1,580 completed all work. The estimated value of the products of those completing the work was \$17,376.87. The estimated total cost to members was \$16,417.45. Of the total membership for the year 30 per cent had been members in 1915. Ninety-five per cent of the membership was secured by the volunteer local leadership. Of the total results 25 per cent were secured under the paid local leadership.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 28 clubs, 222 members, reporting 222 acres, producing 6,882 bushels; potato, 11 clubs, 81 members, reporting $10\frac{1}{8}$ acres, producing 1,961.75 bushels; garden, 41 clubs, 227 members, reporting 3,632 square rods, producing products estimated to be worth \$5,615.80; poultry, 40 clubs, 196 members, reporting a production of 2,156 chicks; pig, 47 clubs, 88 members, reporting a production of 14,124 pounds of pork; sewing, 62 clubs, 558 members, reporting a production of 2,050 articles; cooking, 32 clubs, 208 members, reporting miscellaneous dishes.

Farm-management demonstrations.—Farm-management demonstrations are carried on under the general direction of the extension director, but with the immediate supervision of a farm-management demonstrator employed cooperatively by the college and the States Relations Service of the United States Department of Agriculture. In all cases these demonstrations are conducted as a part of the regular county-agent work. At the beginning of the year demonstrations were in progress in four counties, which work was continued during the year and new work taken up in three other counties. Within the year the farm-management demonstrator, county agents, and others assisted 208 farmers to summarize, analyze, and study their farm business for the year, and 129 farmers who were aided the year before were given some help for the second time. Of these farmers, 158 made arrangements to keep a simple record of their business throughout the year, so that at the end of the year they themselves, with a little assistance from the county agent, can summarize their business to determine how much they have made and to decide how they may increase their income the following year.

Farm specialists.—Under this project specialists were sent out from the college to assist the county agents; \$937.39 of Smith-Lever funds were expended.

OTHER EXTENSION WORK.

Farmers' institutes.—All farmers' institutes are conducted under the direct supervision of the extension service, and, as far as possible, this work was organized in connection with the activities of the county agents. It included 103 one-day institutes, 7 two-day institutes, and 9 three-day meetings, sometimes designated as extension schools, with a total attendance of 19,779. The number of lecturers from the extension staff was 15, and from outside sources 12. The work was done with a State appropriation of \$1,000 for this work supplemented by local funds to the extent of \$1,060.

OUTLOOK.

The employment of an extension director to devote his entire time to the organization and administration of extension work is in line with the usual plan of organization in all the States. The county-agent work shows a healthy normal growth. With the development of the county farm-bureau organizations and the adoption of definite written projects for the agents, this work is likely to be on a firmer basis than heretofore. The recent appointment of a State county-agent leader to give his whole time to the organization and development of county-agent work is opportune. Some demand is also appearing for the placing of home-demonstration agents. In the club work the need is seen for adequate paid local leadership, particularly through the summer-vacation period. On the whole, the extension work seems well organized and being effectually administered to meet the needs of the State.

CONNECTICUT.

Division of Extension Service, Connecticut Agricultural College, Storrs.

H. J. BAKER, *Director*.

Organization and administration.—The work of the extension division has continued under the same organization as last year. Two new county agents were added. Cordial relations have continued with the State board of agriculture and the several State associations of farmers representing special agricultural interests.

Publications.—Four publications were issued and paid for from Smith-Lever funds. Three of these dealt with various forms of extension work and the fourth with poultry diseases. These publications are distributed to masters of granges, to the Young Men's Christian Association, and sent to an unclassified experiment station mailing list of about 7,000 names.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$11, 397. 19
Smith-Lever, State.....	1, 397. 19
United States Department of Agriculture, farmers' cooperative demonstration work.....	5, 825. 48
United States Department of Agriculture, Bureau of Animal Industry.....	1, 293. 00
State appropriations.....	7, 756. 21
County	23, 939. 27
Other sources within the State.....	6, 900. 00
Total.....	58, 508. 34

Smith-Lever funds were used in support of the following projects: Administration, county agents, boys' and girls' clubs, poultry husbandry, dairying, and farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' clubs, dairying, and farm management.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 5; June 30, 1916, 7; funds expended, \$35,890.56.

The extension director acts as county-agent leader. An assistant county-agent leader was appointed September 1, 1915. All counties have farm bureaus and county agents excepting one, and that county has effected an organization and will soon be ready for a county agent. The farm bureaus were strengthened by the formation of community committees to carry on the work locally. In practically all cases the work of the specialists is done with the county agents who cooperate with granges, farmers' clubs, and other local organizations in conducting their work. Extension schools and farmers' institutes are conducted as a part of the county-agent's program.

The following organized projects received attention in one or more counties, the first four being practically State-wide: (1) Dairy improvement, (2) orchard improvement, (3) crop improvement, (4) farm management, (5) boys' and girls' club work, (6) poultry improvement, (7) live-stock improvement (cattle and swine), (8) marketing, and (9) liming for legumes. The work in each county is generally limited to a few lines of definite work. The agents are, however, doing a considerable amount of work with individual farmers by means of farm visits.

The agents conducted 317 demonstrations, at which 176 meetings were held, attended by 4,508 people. The more important demonstrations were those relating to horticulture, forage crops, cereals, live stock, and poultry. Poultry raising is an important industry. In Middlesex County meetings were held in each community for the purpose of showing farmers how to select profitable hens and those best suited for breeding stock. Eleven demonstrations were given with a total attendance of 1,804. As an illustration of the value of these demonstrations, one flock is cited which contained 150 White Leghorn hens, some of which were yearlings and some 2-year-olds. After the demonstrations the owner selected 85 hens from the flock and sold them. An examination of these hens by an expert showed that in practically every case they were birds of low condition and poor layers. They had simply been "boarders" in the flock. In Windham County considerable time was given by the county agent to marketing work. Six groups of farmers organized for the purchasing of products. One of these groups, the Woodstock Grain Buyers' Association, was incorporated under the laws of the State. During the year it purchased \$7,000 worth of grain and lime for its members. In five counties the pruning and spraying of orchards were important lines of work, and 12,157 trees were pruned or sprayed.

Boys and girls' club work.—Club work was conducted by a State leader and one assistant, with seven part-time local leaders working in cooperation with the department of education, public schools, and the county agricultural agents. The State leader is cooperatively employed by the State college of agriculture, the State department of education, and the United States Department of Agriculture.

Seven club projects in agriculture and home economics were outlined, furnishing program of work for 61 club groups containing a total membership of 2,345. Of this number 914 completed all work required. The estimated total value of products of members completing was \$13,133.19. Fifty per cent of the total enrollment for the year were also members in 1915; 60 per cent of the enrollment was secured by the paid local leaders in charge of the work, while 95 per cent of the total results were secured by these paid local leaders. Two State leaders conducted 69 canning demonstrations, having an attendance of 150 club members but with a total attendance of 10,883. Twenty field demonstrations, 35 club fairs and festivals, 1 training school for club leaders, 30 local club fairs, 1 county fair, and 6 district fairs were held, and an exhibit was made at the State fair. The State leaders visited 784 club members and plats during the year and furnished 23,398 pieces of follow-up instruction from the State college to club members. In the club-project work the number of clubs completing the assigned work, members reporting,

and the resulting products were as follows: Corn, 27 members on 16 acres, producing 1,068 bushels of corn; potato, 29 members, reporting 5 acres, producing 660 bushels of potatoes; garden, 641 members, reporting 13.4 acres, producing products estimated to be worth \$1,797.32; mother-daughter, 22 clubs, 261 members, reporting 12,508 quarts of canned goods and fresh vegetables, estimated to be worth \$2,879.40; poultry, 5 clubs, 94 members, reporting a production of 3,703 dozen eggs and 1,758 chicks; sewing, 1 club, 109 members, reporting a production of 1,171 pieces.

Poultry husbandry.—The prevention of white diarrhea is one of the most important phases of this work, about 10,000 birds being tested. On eight farms where trap nests are used pedigree breeding is demonstrated. The only male birds retained for breeding purposes are from eggs produced by hens laying over 200 eggs per year. Demonstrations were conducted in killing and caponizing. Both rough and detailed plans were furnished to people desiring to build and remodel poultry houses. Assistance was given in making preliminary farm-management surveys on 16 poultry farms. Lectures and demonstrations were given at extension schools. The State poultry association is giving moral support to the poultry extension work.

Dairying.—The projects of last year were continued. A considerable amount of time was spent in cooperation with the county agents in organizing cow-testing associations. The cow-testing associations increased from six to nine. The daily milk-record work was continued. In this the extension division provides farmers with a daily individual milk-record sheet. At the end of the month the farmer sends his figures to the dairy specialist, who tabulates the record and then writes the farmer, discussing the work as reported and advising him in regard to the management of his herd for the following month. In one community the dairy specialist assisted farmers to retain a market which was about to be lost, a cooperative company being organized for handling the milk, which resulted in keeping the market open. The dairy specialist has supervised the construction of 3 concrete silos and has helped plan or remodel 13 dairy barns.

Farm-management demonstrations.—Farm-management demonstrations were conducted by the assistant State leader, who also acted as farm-management demonstrator. Demonstrations were continued in all but one of the six counties in which work was started in 1914, and were begun in one other county. Within the year 147 farmers cooperated with the county agents and farm-management demonstrator by giving an analysis record of the year's business on their farms. Of this number 85 also cooperated the preceding year. In connection with the demonstrations, 132 farmers started a simple system of farm accounts to enable them better to study their farm

business. Many other farmers became interested in the study of their farm business through a discussion of the work at farmers' meetings, extension schools, short courses, and in demonstration reports. Near the close of the year an assistant farm-management demonstrator was employed to help the assistant county-agent leader with some of the work. This enabled the county agents to receive more assistance and to conduct the demonstrations more effectively.

OTHER EXTENSION WORK.

Extension schools.—A well-worked-out plan for extension schools was entered upon this year for the first time in the State. The work was conducted in very close cooperation with the county agents. Each program was so arranged as to meet the local needs or to promote an interest in certain lines of agriculture which have been considered necessary by the county agent for the successful development of the farms. Eight four-day extension schools in agriculture, six of which had separate home-economics sections, were conducted during the winter of 1915-16. These schools were held in distinctly rural communities and only on the receipt of an application signed by farmers or farm women in organized counties. The college provided instructors and equipment and paid the traveling expenses of the instructors to the nearest railroad station. The local expenses, including the living expenses of the instructors, were paid by the community. In agriculture four subjects were taught, soils and crops being required in each school. The two additional courses were selected either from dairying, poultry, animal husbandry, or fruit growing. Much demonstration work in cooking was conducted in the home-economics sections. In the agricultural sections, demonstrations were made in pruning and in calculating feeding rations for dairy cows. The average attendance at each school was 76—37 in the agricultural sections and 39 in the home-economics section. The follow-up work for these schools was cared for by the county agent, especially in dairying and fruit growing, both of which stand out as important features of the county agents' work.

Farmers' institutes.—The same organization for conducting farmers' institutes in cooperation with the extension service exists as in 1914 and 1915. The institutes were arranged and local plans made largely by the county agents, farmers' institutes, like the extension schools being made to fit into the plans of the county agents. Thirty-one institutes were held, with a total attendance of 2,179. The average attendance was 10 more than last year. The increased attendance and interest were largely due to the work of the county agents and to better advertising. Twelve members of the extension staff and the agricultural college and 18 lecturers from outside sources gave instruction.

OUTLOOK.

The State is now practically under the county-agent system with a well-defined plan of work for each county. The support of strong farm bureaus in organization, with financial support from the communities, the counties, and the State, present ideal conditions for developing the projects decided upon. The work under the dairy project is important and outstanding. There are both the immediate results in feeding demonstrations in cooperation with the county agent and the long-time work in breeding plans to be developed with cow-testing and other organizations. Farm-management, orchard, and crop-improvement demonstrations are well planned and are being developed along the line of the needs of the State. As means permit, the work in home economics will be developed as a strong extension feature. The State offers wide opportunity for successful club work. Its complete development will require the entire time of a State leader, supplemented by adequate local leadership. At the extension schools the subject matter taught was intimately related to the needs of the community served, as made known by the county agents. That the local needs were thus considered and met, that the schools were well located and planned, and that follow-up work was provided by specialists and county agents account in large measure for the success of the extension schools.

DELAWARE.

Division of Extension Service, Delaware College, *Newark.*

HARRY HAYWARD, *Director.*

Organization and administration.—With the extension director are associated two specialists and three county agents, each of whom gives his entire time to extension work. The home-economics extension instructor is responsible for subject matter to the dean of the women's affiliated college, but is administratively responsible to the extension director. A poultryman, a woman employed to conduct demonstrations in home gardening, and five men and four women connected with the State agricultural college, or with the women's affiliated college, each devoted less than half time to extension.

The State legislature made special appropriations to the Peninsula Horticultural Society, to the Delaware Corn Growers' Association, and to the State board of agriculture. Cordial relations between these three institutions and the extension division have continued throughout the year. The director of extension is a member of the State board of education. This relation brings the extension service

closely in touch with the public-school system in developing agricultural educational work in the rural and village schools.

Publications.—One bulletin dealing with farm-management demonstrations was published on Smith-Lever funds and sent to the miscellaneous mailing list, composed of 7,000 unclassified names. In addition, several small circulars and leaflets describing the work of the county agents and the dairy and home-economics instructors were issued.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$11, 279. 51
Smith-Lever, State	1, 279. 51
United States Department of Agriculture, farmers' cooperative demonstration work	1, 225. 60
United States Department of Agriculture, Bureau of Animal Industry	1, 188. 00
Other sources within the State	750. 00
Total	15, 722. 62

Smith-Lever funds were used in support of the following subjects: Administration, county agents, home economics, poultry-keeping demonstrations, dairy extension, dissemination of agricultural information, and home-garden demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents and dairying.

A detailed statement of expenditures and receipts has been received and approved:

SMITH-LEVER PROJECTS.

County-agent work.—The three county agents at work in the three counties of the State on June 30, 1915, continued the work throughout the year. Funds expended, \$8,556.68.

The dean of agriculture and director of the experiment station and extension work continued as county-agent leader, with no assistants. Each county in the State has an agent, who is developing his work for the most part by means of farm visits, and in this way rendering direct assistance to farmers in connection with their individual problems. There are no farm bureaus, no county financial cooperation, and but little cooperation with other organized groups of farmers.

The following were the principal county projects given attention during the year: (1) Boys' and girls' club work; (2) farm-management demonstrations; (3) tomato spraying; (4) introduc-

tion of leguminous crops—alfalfa, soy beans, and winter vetch; (5) orchard fertilization; (6) liming for soil acidity; and (7) silo building. One hundred and thirty-seven demonstrations were conducted principally in connection with the above projects. Thirty-one meetings were held at the demonstrations, which were attended by 316 people. Fifty-nine farmers grew alfalfa and 65 cared for their orchards, following the directions of the county agent. The work in orchard fertilization received special attention, as the experimental work of the college farm has established the value of the use of nitrate of soda as a fertilizer in orchards when applied in the spring at the rate of 300 to 1,000 pounds per acre.

Twelve boys' and girls' clubs were organized, with a membership of 134.

In farm-management work two of the agents continued work with 81 farmers who had cooperated the preceding year and assisted 24 other farmers to analyze and study their farm business for the first time. Within the year 47 farmers made arrangements to keep simple accounts of their farm business as a means of determining their income more accurately. These, together with the 39 farmers who started such accounts the preceding year, make a total of 86 farmers who are studying their business by this means.

While appreciated results were secured as a result of the individual type of work, county and community organization is recognized as important. The fact that there is no local financial support has made it difficult to develop organized interest and cooperation among the farmers.

Home economics.—The leader of this project conducted six extension schools, in which she gave demonstrations and lectures on cooking and canning. The extension schools were held on three afternoons each week for a period of five weeks in a limited territory, in which there were about 500 farm and village women. Single lectures and demonstrations were given throughout the State at farmers' institutes and women's clubs, attended by approximately 700 women. Five women's clubs were formed to follow up the work given in the extension schools. Twelve hundred women were reached during the fiscal year. One month's time was given to organization, demonstration, and writing of instructions for girls' clubs, six of which were formed during the year.

The county agents cooperated with the leader of this project and contributed much to the success of the work.

The work of the year was appreciated by farm women, and demand for the service is growing.

Poultry.—The work under this project included visits to poultry farms, giving advice and information on housing, feeding, selection

of layers, and weeding nonproductive birds. This project was discontinued at the end of five months.

Dairy extension.—Work on this project was conducted cooperatively between the State dairymen's association, the State agricultural college, and the United States Department of Agriculture. During the year two cow-testing associations were organized, representing 26 herds each. Assistance was given in the construction of two new barns and in the remodeling of four others. Six hundred and twenty individual farm visits were made and 10 meetings attended. Three dairymen were assisted in securing pure-bred bulls and one farmer assisted in the construction of a wooden silo. During the year the leader of this project resigned and a new one was secured.

Dissemination of agricultural information.—Under this project a limited amount of work was done by members of the college and station staff, who attended farmers' meetings, clubs, and institutes for the purpose of giving lectures on agricultural subjects. Work under this project was discontinued at the end of the year.

Demonstrations in home gardens.—Work done under this project corresponds somewhat to boys' and girls' club work, and was conducted chiefly in the town of Newark. The college contributed the use of 2 acres of land, on which 25 boys had their gardens, each 50 feet by 40 feet. Fourteen other gardens were made at the homes of the children. Each club member kept a report of expenses and some of these kept sales accounts. Thirty-nine boys cleared a total of \$150, labor being accounted for at 8 cents per hour.

OTHER EXTENSION WORK.

Some extension work was conducted under special appropriations made by the legislature to two agricultural societies and the State board of agriculture.

OUTLOOK.

The dairy work stands out as one of the most definitely planned and well-conducted features of cooperative extension work. The number of home-economics extension schools, canning demonstrations, and women clubs organized to continue the work of the schools would indicate a growth requiring the services of more than one home-economics instructor. It would seem that more definite cooperation with organized groups of farmers in each county, with definite county projects and well-made plans for following up the work of each demonstrator, would greatly strengthen the county-agent work.

IDAHO.

Extension Division, University of Idaho, Moscow.

O. D. CENTER, *Director, Boise*; J. S. JONES, *Assistant Director, Moscow*.

Organization and administration.—The extension service of Idaho is organized as one of the six coordinate divisions of the State university, thus ranking with the college of agriculture and the experiment station, with which it is on terms of cordial cooperation. A formal "plan for cooperation" sets forth the details of the arrangement governing the relationships of the three divisions in planning projects and carrying the work to the people. Because of the location of the office of the division of extension at Boise, it was found desirable to have as assistant director of extension the director of the experiment station, which is located at the seat of the university, at Moscow. The extension staff includes a vice director and county-agent leader, in charge of seven county agents; a leader in home economics, with one assistant; a leader of boys' and girls' club work; and field specialists in horticulture, animal husbandry, and pure-seed production. During the early part of the year a field dairyman was employed in cooperation with the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture.

Publications.—Seven bulletins were published, in editions varying from 2,500 to 10,000, the total issue being 52,500 copies. Four circulars were issued—one of 3,000 copies, the others of 5,000 copies each. Two issues of news notes were published. As a rule bulletins are sent only to those who make application for them.

Finances.—The following funds were available for cooperative-extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$13, 108. 84
Smith-Lever, State.....	3, 108. 84
United States Department of Agriculture, farmers' cooperative demonstration work.....	5, 150. 00
United States Department of Agriculture, Bureau of Animal Industry.....	343. 00
State appropriations	4, 918. 33
College.....	10, 068. 17
County.....	7, 520. 00
Total.....	44, 217. 18

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, boys' and girls' club work, field animal husbandry, dairy extension, and field horticulture. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, and dairying.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 3; June 30, 1916, 7; funds expended, \$17,659.78.

The work continued as last year with a county-agent leader in charge. The absence of a State law authorizing counties to appropriate funds toward the support of the work materially retarded its development. One of the most effective developments of the year was the organization of farm bureaus in three counties, with a total membership of 765. Membership campaigns were projected in each of the other four counties and a definite plan of organization was adopted by the extension division.

The following organized projects received attention in one or more counties during the year: (1) Pea production as a forage crop on dry land, (2) alfalfa and clover as forage and seed crops on dry land, (3) hog-cholera control, (4) potato-disease control, (5) silo building, and (6) eradication of farm pests, rodents, ground squirrels, jack rabbits, grasshoppers, and crickets. Blackleg vaccination, while not developed as a project, was given considerable attention in certain counties. The State policy was decidedly toward restricting the work to a few definite projects.

Two hundred and fourteen demonstrations were conducted, at which 185 meetings were held, attended by 4,050 people. The most important demonstrations were those relating to forage crops and control of plant diseases, insects, rodents, and other animal pests. Southern Idaho is one of the leading clover-seed producing centers in the United States. There are 20,000 acres devoted to the production of clover seed annually in Twin Falls County alone. This crop was seriously damaged in past years by grasshoppers. In 1915 by experimental work instigated by county agents it was determined that a spray of sodium arsenate was most effective in destroying the hoppers. Two thousand acres were saved by this means in 1915. Profiting by the experience of 1915, farmers adopted the spraying of their fields as a universal practice. Some 20 power-spraying rigs did custom spraying. From 20 to 90 per cent of the hoppers were killed at the first application, and the crops were saved. In Franklin and Power Counties, through campaigns arranged by agents in cooperation with the Biological Survey of the United States Department of Agriculture 50,000 jack rabbits were killed and poison bait put into 500,000 ground-squirrel holes. As many as 800 jack rabbits were killed in a single night on one farm, and 380 dead squirrels were found on a 30-acre lot. In Fremont County the coulee cricket has taken an annual toll amounting to thousands of dollars. County

commissioners appropriated as much as \$4,000 a year to fence out the crickets. This year large colonies were found which covered more than 80 acres. As many as 75 crickets per square foot were counted. The county agent after trying various poison baits compounded one that killed from 80 to 90 per cent of the crickets. He secured an appropriation of \$200 from the county for the purchase of poison, organized a systematic campaign, and controlled the threatened devastation. After paying the expenses for killing the crickets the county agent returned \$120 of the appropriation to the county commissioners. Nineteen registered bulls and 46 registered cows were secured for farmers; 3 cow-testing associations were organized, and 1,714 cows tested for milk production; 9,813 calves were treated for blackleg.

Home economics.—The leader and one assistant gave lectures, chiefly on preparation of foods, at farmers' institutes and extension schools. Considerable attention was also given to girls' clubs in cooperation with the State club leader. A special two-months' summer project was carried on in cooperation with the States Relations Service. Thirty-nine meetings were held, 391 farm homes visited, and 429 farm women secured or adopted some labor-saving device.

Boys' and girls' club work.—The extension work with boys and girls was conducted chiefly by means of club projects, with one leader in charge as in 1915, and the addition of a woman assistant who began work on September 1. The work was closely directed by the leader in charge, by the director of extension, assisted by the staff of specialists and county agents. Cooperating with these, county superintendents of schools, rural teachers, business men, and farmers, normal schools, etc., not only gave their moral support, but contributed toward the promotion and direction of the work; their cooperation in follow-up work was especially helpful. The State leader prepared and distributed 57,400 copies of circulars, letters, etc.

The total number of farm and home projects provided for the boys' and girls' club work was 15, in which there was a total membership of 6,555, forming 661 clubs or groups. Of the total enrollment, 5,740 actually started the work and 1,073 completed all requirements in the work.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 9 members, reporting 9 acres, producing 637 bushels of corn; potatoes, 36 members, reporting 4,432 acres, producing 1,813 bushels of potatoes; garden, 8 clubs, 99 members, reporting products estimated to be worth \$4,588.87; sugar beet, 1 member, reporting 0.5 acre, producing 10 tons; mother-daughter, 1 club, 541 members, reporting 21,814 quarts of canned goods; poultry, 42 members, report-

ing a production of 1,627 chicks; pig, 66 members, reporting a production of 13,142 pounds of pork; bread, 70 members, reporting a production of 700 loaves of bread; lamb, 5 members, reporting a production estimated to be worth \$53.20.

Lewiston, the champion club of the State, furnishes a notable example of the possibilities of the work for the future. This club had an enrollment of 46 members, held regular club meetings, and made an average profit per member of \$68.26 from their home-garden activities.

Dairy extension.—At the beginning of the year dairy-extension work was conducted in cooperation with the Dairy Division of the United States Department of Agriculture. This arrangement terminated in October, 1915, since which time the extension service has cooperated with local cow-testing associations in an advisory way only.

Animal husbandry.—Demonstrations were conducted to show the value of "hogging down" peas and beans. Pig clubs were organized and supervised, plans were made for a number of dairy barns and permanent hog houses, and a large number of visits made to farms for consultation on live-stock problems.

Field horticulture.—The work of this project as planned consisted largely of demonstrations to "present concretely to the horticulturists and farmers of the State a knowledge of correct principles * * * and successful practice of the fundamentals of production, care, and marketing of horticultural products." As actually carried out, the work was largely given to teaching farmers improved methods of potato-seed production and how to guard against potato diseases which were unusually prevalent in the State.

OTHER EXTENSION WORK.

Extension schools.—Fifteen extension schools of from three to five days and nine two-day and three-day institutes were conducted, the total attendance amounting to 29,206. In addition, 172 one-day meetings were held. It is believed that more than 100,000 people were reached in these ways. The tendency in this form of extension teaching is toward demonstrational methods of genuinely practical character in which the work is shared by those who are seeking information and instruction in newer methods in agriculture and home economics.

Pure-seed work.—The pure-seed work is only incidentally an extension activity. The extension service promoted interest in producing and planting clean seed, encouraged crop diversification in sections where weeds were most abundant, and compiled a directory

of local seed growers, thus arousing interest in maintaining a State seed-growers' association.

OUTLOOK.

The plan of organization providing that the director of the experiment station shall be assistant director of extension should bring to the extension work the active support of the experiment station. The county-agent work has made satisfactory progress under unfavorable conditions regarding county appropriations. The organization of farm bureaus and the membership campaigns have served to strengthen and popularize the work. The protection of the clover-seed crop from grasshoppers and crickets and the successful campaigns waged against jack rabbits and ground squirrels are typical of the results which can be secured through organized effort under definite leadership. The boys' and girls' club work was with a membership almost entirely new for the year. While the results were satisfactory, effort should be made to retain the membership from year to year, until they can finally be graduated into membership in the county farm-bureau association.

ILLINOIS.

Division of Demonstration Work, College of Agriculture, University of Illinois, *Urbana*.

E. DAVENPORT, *Director*; W. F. HANDSCHIN, *Vice Director*.

Organization and administration.—The director has general administrative authority over the extension policy and work. The vice director has immediate charge of routine matters of administration and acts as county-agent leader; a superintendent of extension has charge of the annual farmers' week or convention at the college, extension schools and short courses, junior extension work, exhibits at fairs, the entertainment of delegations visiting the university, and a number of other activities; and a vice director of extension in home economics has charge of all extension work in home economics, including the demonstration car and the school for housekeepers held annually at the college. Before the establishment of the present system after the Smith-Lever Act became effective, extension work in the college of agriculture had been organized under a superintendent of agricultural extension. This work, supported entirely by State funds, continues under the same plan and leadership. The new work, supported in part by United States Department of Agriculture funds, is supervised by the vice director. There is one exception, the superintendent of extension

supervises the junior extension or club work supported partly by Federal funds, but in this work is administratively responsible to the vice director; while in all other matters he is responsible to the director. The officer in charge of extension in household science reports to the vice director.

Publications.—Three extension circulars were issued during the year.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal-----	\$36, 282. 20
Smith-Lever, State-----	26, 282. 20
United States Department of Agriculture, farmers' co-operative demonstration work-----	17, 031. 30
United States Department of Agriculture, Bureau of Animal Industry-----	300. 00
College -----	2, 190. 00
County -----	26, 108. 00
Other sources within the State-----	32, 417. 80
Total -----	140, 611. 50

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, county advisors in home economics, farm-management demonstrations, and departmental advisors. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairying, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 17; June 30, 1916, 20; funds expended, \$112,605.70.

The work is organized with the vice director of extension as county-agent leader with one assistant. The county organization usually consists of a soil and crop improvement association, which is an incorporated body with a board of directors. Membership is composed of farmers and others interested in agriculture, the membership fee usually being \$10 per annum. Before the college gives approval to the employment of a man as agent it is required that he shall have had five years of successful farm experience after graduation before employment. The agents work directly with the members of the association and endeavor to visit each member at least once during the year. The plan of work is based on the idea that the membership of the association

will include the most progressive farmers who will most readily and intelligently cooperate with the agent. To some extent their farms are used as demonstrations and meetings are held to which the public is invited. Through these meetings and the activity of the members the public is acquainted with the methods pursued and the results secured. During the year advisory committees were appointed in some associations to cooperate with the agent along subject-matter lines. This plan was found advantageous and is being extended to all associations.

The work was not definitely projected, but consisted of giving advice and personal help to members of the association with their farm problems. Special emphasis was placed on the development of a system of permanent soil fertility through the use of limestone, rock phosphate, and legumes, both as a forage crop and for humus-forming material.

Owing to the general advisory nature of the work and the absence of carefully developed projects and methods of follow-up work, it was not easy to report definite results. Among the results reported were the use of 30,434 tons of limestone and 16,605 tons of rock phosphate by farmers cooperating with the agent; 5,397 acres of alfalfa and 9,863 acres of sweet clover grown by farmers on the suggestion of the agent. Most of the county associations engaged in some form of cooperative buying, mostly farm seeds, limestone, and rock phosphate. The total business transacted through these associations during the year amounted to \$189,946, effecting an approximate saving of \$22,268.

Home economics.—During the year 14,710 women were reached through lectures and demonstrations, 17,694 through extension schools, 426 through schools for housekeepers, 11,208 through two-weeks' short courses at the college, and 35 communities visited by the demonstration car, and 6,113 in connection with county-agent work. Extension schools lasted five days and demonstrations in cooking and canning were the principal features taken up. Some work has been done for girls in an attempt to give instruction in growing flowers for the city markets. A school for girls was maintained by the State board of agriculture, in cooperation with the extension division, at the State fair at Springfield. At this school the girls are given instruction in cooking, dishwashing, serving meals, and care of the house. During the year special attention has been given to the demonstration car which has been purchased by the college and equipped with various machinery and house furnishings. This car is sent out in immediate charge of the rural engineer and a home-economics instructor. The community desiring the car provides for its transportation on the railroad and pays local expenses. The manage-

ment of the car is under the direction of the leader of the home-economics project.

County advisors in home economics.—Home-economics work by means of a woman county agent was carried on in one county. There is a strong organization of women with over 1,100 members. During the year 23 women's clubs carried on regular work and 8 girls' clubs held meetings and carried on work under a systematic plan. It is reported that approximately 4,000 people attended special club meetings, 700 attended short courses, and that 145 individuals were advised regarding some special problems in their own homes.

Farm-management demonstrations.—In Illinois the farm-management demonstration work was started in one county in November, 1914, but it was not until August, 1915, that a regular farm-management demonstrator assumed his duties to work with the county agents of the State. The work was continued in this first county and started in two other counties, where 215 farmers were assisted in analyzing their business. In these three counties 204 farmers made arrangements to keep simple farm accounts in books prepared for the purpose. As a result of this account-book work, which seemed so promising, a campaign was begun in seven other counties, in which a total of 339 farmers were assisted in starting records of their business. This made a total of 543 farmers who were studying their farm business in this manner. These account books kept in connection with the farm-management demonstration work were furnishing some valuable data for use by the farm-management investigators of the State.

Departmental advisers.—Specialists in agronomy, animal husbandry, dairy husbandry, and horticulture were provided "to assist county advisers and farmers' organizations along special technical lines," as indicated by their several professional titles. They were members of the research and teaching departments of the college, to which they were responsible for the soundness of their teaching. The project indicated that each of these men was to give one-third or one-half time to extension work, in which they were administratively responsible to the extension service. In actual practice the work has seemed to develop more slowly than other branches of the extension service. As the work was planned largely for the purpose of aiding the county agents, it is not possible to mention measurable results under this project. Results would be reported by the county agents.

OTHER EXTENSION WORK.

Extension schools.—During the year 40 extension schools were held, attended by approximately 5,000 people. A majority of the instructors in these schools are graduates of the college who are now

located throughout the State, for the most part on their own farms. Schools usually continue from Monday noon to Friday night. Two lines of instruction are developed in extension schools, these being animal husbandry and farm crops. No women's courses are held in connection with agricultural schools, though the two schools may be held in the same town at the same time, but in separate halls. The county agents give official sanction to the extension schools and the location of the school is left largely to their decision. Occasionally a carload of material is taken from the college, but extensive use is made of charts and material obtained locally. Demonstrations are conducted in stock judging, orchard, field, and demonstration trips, field selection of seed corn, and judging corn.

Boys' and girls' club work.—Club work as a phase of agricultural and home-economics extension work was conducted by one State leader in charge, assisted by one woman during the latter part of the year, and by five temporary county leaders for a short time during the summer. Five county agents assisted in their respective counties, and county superintendents of schools, normal schools, and the public-school teachers gave valuable aid in the work. Seventy-five per cent of the leadership in the field was by volunteer leaders. Sixty-two per cent of the unpaid leaders were public-school teachers. During the school year the leadership and direction given by the school-teachers was reported as satisfactory, but during the summer vacation additional leadership was needed.

Seven projects were outlined and promoted in which 2,655 boys and girls were enrolled. The enrollment was not organized into clubs. Of the total enrollment, 849 undertook the work and 540 completed the work required by the State leader. The total value of club product of those completing the work was \$10,238.41. State leaders conducted 60 canning demonstrations during the year, with a total attendance of 8,600. One hundred and eighteen field meetings were held, eight fairs and festivals, and six training schools for local leaders. Five hundred and fifty members were enrolled in the corn club, of whom 128 finished the work required. The total value of the corn was \$4,831.13. In the garden and canning club 321 members who finished put up canned food products valued at \$4,033.33. Seventy-five members were enrolled in the potato club, of whom 15 completed the work. The value of the potatoes was \$105.50. In the poultry-club work 396 members were enrolled, of whom 31 completed their project. One soil-fertility project was undertaken with an enrollment of four, all of whom completed the work required.

OUTLOOK.

In the organization of the work in Illinois the effort has been made to preserve a large measure of departmental responsibility. It has not been thought wise to place the administration of all the extension work in one department under a single leader. The departmental advisers have usually engaged in college teaching, research, or extension work according to the needs of the work. Possibly more centralized control in administration would give somewhat better correlation of work. The county-agent work has, as a rule, been liberally supported financially. The high standard required by the college before a man can be cooperatively employed has brought into the work men of liberal training and wide experience. The county associations, composed of the leading farmers of the county, give to the work a standing in the county. All farmers are invited to the farm-demonstration meetings, and the results of the work are made generally known through the press, extension schools, and farmers' institutes. Thus the work, while conducted primarily with association members, is made of value to all farmers of the county. The home-economics demonstration car is unique and furnishes a means of reaching effectively a large number of people and instructing them through selected demonstration material.

INDIANA.

Division of Agricultural Extension, Purdue University, *Lafayette*.

G. I. CHRISTIE, *Superintendent of Extension*.

Organization and administration.—The extension division of Purdue University is coordinate in rank with the school of agriculture and the agricultural experiment station. Like the dean of the former and the director of the latter, the superintendent of extension is responsible directly to the president of the university.

In the administration of the extension work for which he is responsible, the superintendent of extension is aided by an assistant county-agent leader and two assistants in charge of 33 county agents; a leader of boys' and girls' clubs; a superintendent of farmers' institutes; a leader of farmers' short courses, with nine assistants; also one or more specialists in charge of each of the following named projects: Animal husbandry, dairy production, farm-management demonstrations, home economics, horticultural demonstrations, poultry and egg management, weed and plant disease control.

Publications.—Regular extension publications are arbitrarily divided into two classes; those of eight or more pages being called bulletins; those of six or fewer pages are called leaflets. Of the former, 8 were issued; of the latter, 13. In addition, the depart-

ment published its fourth annual report and a 10-page folder. Whenever an extension publication is ready for distribution the newspapers of the State are sent notices which invite farmers and others to make application for such as they desire. No general mailing list is maintained, the assumption being that persons not sufficiently interested to apply for publications are not likely to read those sent to them.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal_____	\$28, 931. 02
Smith-Lever, State_____	18, 931. 02
United States Department of Agriculture, farmers' cooperative demonstration work_____	14, 253. 73
United States Department of Agriculture, Bureau of Animal Industry_____	2, 816. 65
State appropriations _____	56, 001. 22
County_____	51, 614. 80
Other sources within the State_____	23, 632. 35
Total _____	<hr/> 196, 180. 79

Smith-Lever funds were used in support of the following projects: Administration, county agent, home economics, extension schools, boys' and girls' club work, animal husbandry, poultry and egg management, dairying, soils and crops demonstrations, horticultural demonstrations, and weed and plant disease control. Funds from the United States Department of Agriculture were used in the support of the following projects: County agent, boys' and girls' club work, dairying, and farm management.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 31; June 30, 1916, 32; funds expended, \$84,202.39.

The work was continued as last year with an assistant county-agent leader in charge and two assistant county-agent leaders, but on May 27 one of the assistants resigned. There are no county farm bureaus in the State. The county-agent law is a part of the Indiana vocational education law and provides that when 20 or more residents who are actively interested in agriculture shall file a petition for a county agent with the county board of education, the county court shall appropriate not to exceed \$1,000 for county-agent work. The agents are doing much work through local associations of farmers, such as cow-testing associations, live-stock breeders' associations,

farmers' clubs, etc. One hundred and twenty-four such organizations were formed in 1916 by the agents.

The main lines of work of the county agents organized in definite form were as follows: (1) Correction of soil acidity; (2) drainage; (3) addition of organic matter to the soil; (4) legumes; (5) wheat production; (6) seed-corn selection; (7) storing and testing seed corn; (8) oat-smut control; (9) alfalfa production; (10) pork production, including cholera control; (11) horse production; (12) beef production; (13) dairy production; and (14) boys' and girls' club work. In the more important lines work was organized in each county into a campaign. Each county agent was assisted in the campaign by a specialist from the college.

One thousand three hundred and ten demonstrations were conducted, at which 402 meetings were held, attended by 14,774 people. The most important demonstrations were with forage crops, plant-disease control, improvement of cereals, soil improvement, live-stock feeding, and dairying.

A striking illustration of a demonstration well conducted was the use of a self-feeder in a hog-feeding demonstration under the direction of the county agent, cooperating with the Montgomery County farmers. A ration of shelled corn and tankage in a self-feeder produced gains in hogs at a cost of 4.9 cents per pound. Of the 30 farmers attending the meeting 15 built self-feeders and purchased tankage to reinforce their hog ration within three weeks following the meeting.

During the fall of 1915 a number of the county agents conducted feeding demonstrations with cattle and hogs to show the greater value of corn and soy beans planted together in the row than that of corn planted alone. One hundred and twenty-two hogs on corn alone, with corn valued at 70 cents per bushel, made gains at a cost of 7.1 cents per pound. Two hundred and seventy-two hogs on corn and soy beans made their gains at a cost of 5.87 cents per pound. In each case the gain with corn was carefully estimated. With pork at 9 cents the hogs on corn alone returned \$41.58 per acre, while those on corn and soy beans grown together returned \$57.69, a difference of \$16.11 per acre in favor of growing a protein feed to balance the corn.

Twelve cow-testing associations were organized during 1916, through which 1,661 cows were tested. The dairy association in Bartholomew County, while directing its energies solely to dairy breeding, already shows beneficial results through the bringing into the county of two carloads of Holstein heifers and a large number of pure-bred Jerseys to be used in the various dairy herds. In St. Joseph County a milk-producer's association was organized, con-

stituting a distinct step in the development of a better production of dairy products and the elimination of waste through the multiplicity of handlers.

Home economics.—Work under this project was carried on by 3 full-time specialists, assisted by 2 part-time specialists and 15 women who lectured at farmers' institutes. Two-day demonstration meetings were held in 22 places, with an average attendance of 2,594; at each of these one lecture and three demonstrations were given, the local people selecting the subjects. Assistance was given to girls' club work, 38 visits being made to clubs. One hundred and eighteen girls completed the year's work. Work with 165 home-economics classes or clubs was continued during the year, 49 new classes being added. Thirty classes were visited upon request; 30 demonstrations and 17 lectures were given as a result of these visits, the total attendance being 2,499 women. Thirteen community meetings were held, at which nine demonstrations and seven lectures were given, the total attendance being 2,130. These meetings were called for the purpose of awakening an interest in home-betterment work in communities where no organization had previously existed for that work.

Boys' and girls' club work.—Club work was conducted with a State leader and two assistants in charge of the work, as in 1915. The State club leader was employed cooperatively by the United States Department of Agriculture, the State extension service, and the State board of education. The Bureau of Animal Industry, of the United States Department of Agriculture, cooperated in the employment of an assistant club leader, who devoted all of his time to pig-club work. The State leader cooperated with the county agricultural agents, county superintendents of schools, and township committees in the organization of club work. During the year the extension service cooperated with 36 communities, employing local leaders in club work during the summer months. The active support and cooperation of school-teachers and officials was solicited and secured. The local leader employed is usually a teacher in the township qualified by training and experience for leadership in the work. The follow-up instruction was prepared and sent out by the extension service. Fairs, club exhibits, and festivals were held in various centers where club projects were exhibited and club practices demonstrated. A short course for club members was held at the college during January.

Three hundred and seventy-one clubs were organized in 11 definite projects, with a total enrollment of 25,741, of which 22,998 members began work and 21,429 completed all work, producing products valued at \$138,539.70. The club members reported the total cost of production as \$47,776.35. The leaders gave 29 canning demonstrations, held 17 field-demonstration meetings, and conducted 50 club

exhibits. Twenty club-leader training schools were held during the year. There were 1,250 local club exhibits throughout the State, 40 county exhibits, and 2 State exhibits.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 61 clubs, 726 members, reporting 2,153.7 acres, producing 120,535.5 bushels of corn; potato, 15 clubs, 95 members, reporting 14 $\frac{5}{7}$ acres, producing 1,330.75 bushels of potatoes; garden, 30 clubs, 18,868 members, reporting 104.4 acres, yielding products estimated to be worth \$1,847.99; poultry, 38 clubs, 325 members, reporting a production of 7,820 chicks; pig, 67 clubs, 392 members, reporting a production of 189,353 pounds of pork; dairy, 34 clubs, 547 members, reporting a production of 1,023,171 pounds of milk; canning, 14 clubs, 126 members, reporting a production of 3,543 quarts; garment making, 16 clubs, 396 members, reporting a production of 1,595 garments; bread, 5 clubs, 52 members, reporting a production of 2,635 loaves of bread; handicraft, 1 club, 7 members, reporting a production of 16 articles; miscellaneous, 9 clubs, 18 members, reporting products estimated to be worth \$2,163.80.

All projects conducted showed a net profit. A more important factor, however, was its favorable effect upon farming throughout the State. Thirty-six paid county or local leaders were employed by the college to assist the State leaders for the supervision of the work during the club season. Pig-club work was cooperatively conducted with the Bureau of Animal Industry of the United States Department of Agriculture.

Animal husbandry.—The work included a live-stock improvement campaign carried on in part by means of two automobile tours to inspect stock farms; a series of meetings to arouse interest in silos and the use of silage; a swine-production campaign, with meetings in 12 counties; live-stock-judging contests, culminating in the annual judging contest for boys at the State fair; and a series of cooperative live-stock-feeding demonstrations, including 13 with cattle in 10 counties, 16 with swine in 11 counties, and 3 with sheep in 2 counties. These demonstrations involved the use of 3,914 animals in 17 different counties. The hogging-down demonstrations aroused widespread interest in the counties where they were conducted.

Farm poultry and egg management.—On eight farms well distributed over the State special demonstrations were conducted through the year. The poultry on these farms was handled according to definite instructions. Seven or eight visits were made to each of these farms by the club leader. On the occasion of each visit interested neighbors of the demonstrator-farmer were present by invitation to talk over poultry problems and especially to study and discuss

the demonstration under way. Uniform records are kept by each demonstrator-farmer in books furnished by the extension department. One important result of this intensive form of poultry-demonstration work is that the farmer conducting the demonstration becomes a teacher of his neighbors as well as a competent speaker to be used at farmers' institutes. There were 75 poultry associations in the State, each of which held a poultry show every year. These shows were attended by a poultryman from the college, who carried a teaching exhibit.

Dairying.—Emphasis was placed on cow-testing association work. At the beginning of the year there were four associations; at the end eight were in active operation, each employing an expert tester. In these eight associations 1,780 cows were under test. In one county the association began with 385 cows, 294 of which in 23 herds completed the year's record with an average production of 7,320 pounds of milk and 273.2 pounds of butter fat. The highest producing herd averaged 7,563 pounds of milk and 308.7 pounds of butter fat; the lowest record was that of a herd averaging 5,093 pounds of milk and 189.3 of butter fat. The best herd showed a margin above feed cost of \$87.23 per cow; the poorest herd a margin above feed cost of \$36.68 per cow, and only one cow was kept at a net loss.

Twelve of the 23 herds were headed by pure-bred sires; and their average yield of milk and butter fat was 1,189 pounds, and 28.2 pounds greater than that of the 11 other herds. At the end of the year an automobile excursion served to acquaint the members with the various herds of their association and to show the results of the year's work. This excursion was followed by a reorganization of the association, which included 19 of the original membership of 24.

One demonstration was planned to encourage dairymen to keep records of the cost of producing market milk. This will be continued two years to enable producers to compare the advantages of different methods. More than 60 visits were made in response to requests for individual advice. Six meetings were held in the southern part of the State to discuss dairying in its relations to soils and crops; and 10 dairy picnics gave opportunity for lectures on feeding and herd improvement and for cow-judging demonstrations.

This work was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Crops and soils.—In an endeavor to teach farmers how to solve one of the big problems of the State—that is, how to keep up the supply of organic matter—seven demonstrations with corn and soy beans were conducted. In these demonstrations corn and soy beans are grown and hogged down. Where the yield of corn alone was compared with the yield of corn and soy beans, the corn alone yielded

3 bushels per acre more than corn in the combination, but the beans yielded from 6 to 10 bushels per acre, which thus gave a crop of considerable more value than corn alone. Fifty demonstrations in the use of lime and clover were conducted.

Twelve exhibits dealing with crops and soils subjects were made at county fairs, and one at the State fair. Three months in the winter was devoted to extension schools. Three thousand samples of soil were tested for acidity by the chemists at the college, over 60 per cent of these samples being found acid.

A 5-acre corn-growing contest begun three years ago under a separate organization and turned over to the soils division in 1915 was continued to 1916. Four hundred and eight contestants in 23 counties completed the work. Moisture tests were made and all yields calculated on a uniform basis. The average of all yields was 61.1 bushels per acre, the average cost 21.1 cents per bushel. The director reports that the average cost of producing a bushel of corn in the State is 36.4 cents. The contest is demonstrating that high yields are necessary for the largest net profit in corn growing.

In cooperation with county agents, a special wheat campaign was conducted during the month of August; two-day tours were conducted, in which several meetings were held in each of 12 counties.

Horticulture.—The work done under the horticulture project included 107 all-day demonstrations in orchards. Of these, 52 held in the fall of 1915 were devoted to discussion of pruning, followed by the complete pruning of a tree by the demonstrator, after which other trees were pruned by members of the group in attendance. Other demonstrations were given of methods of picking and packing fruit. The spring demonstrations, 55 in number, were planned to reinforce those of the fall before, being chiefly to illustrate methods of spraying and to emphasize the importance of proper summer management of orchards. An educational exhibit made at the Indianapolis apple show. Loan collections of lantern slides, with syllabi for lectures, were prepared on orcharding and landscape topics.

Weed and plant disease control.—The division of botany continued the lines of work carried on the previous year. Demonstrations to teach the use of formaldehyde in the control of oat smut and potato scab were carried on chiefly by the county agents. Thirty-four demonstration meetings were held in 12 counties, with a total attendance of 1,916 persons. As a result of the demonstrations there was a noticeable increase in the use of the formaldehyde treatment. Methods were recommended for the eradication of wild garlic, Canada thistle, and whitetop. Nine high schools, one normal school, and one academy were visited and instruction given to 667 students in studying and making collections of weeds and weed

seeds. The identification of weed seeds was continued. As an indication of the interest in this work may be mentioned the fact that more than 900 letters were received from farmers, most of them containing samples for identification and asking for advice regarding the control of weeds.

Farmers' short courses.—Two kinds of extension schools were held, viz, the "small" and the "regular," the former continuing from two to two and a half days, the latter three days. The small extension schools were held in villages and remote communities where the prospective attendance or the circumstances did not seem to justify conducting large schools. For the campaign of small schools the regular short-course staff was divided into two teams, each of which conducted a series of five schools before the Christmas holidays. At the schools of one circuit, lectures and demonstrations were given in soils and crops, horticulture, and home economics; on the other circuit live stock, poultry, and home economics. In addition, there were a few stereopticon lectures at each school. The aim was to make the instruction and demonstrations so definite and practical that the people would be sure to learn principles and methods of applying them on the farm and in the home. The attendance ranged from 150 to 475, with an average of 300.

Twelve regular short courses were held, the attendance ranging from 375 to 700, and averaging 475. A carload of illustrative equipment was taken from place to place, including 10 head of live stock for use in judging demonstrations. The large amount of valuable illustrative material served to make the teaching very definite and interesting.

OTHER EXTENSION WORK.

Veterinary work.—The policy of furnishing speakers to discuss hog cholera at farmers' institutes, begun last year, was continued. The subject was presented at 38 institutes, thus reaching about 8,000 people. A considerable amount of work was done in counties not having county agents, this being in cooperation with farmers, townsmen, and local veterinarians. Fifteen meetings were held, with a total attendance of 1,240 people.

The veterinary division of the agricultural college has promoted community organizations for the purpose of preparing and helping farmers to protect their swine against hog cholera. Nine communities are now organized. Six district meetings of veterinarians were held in the southern part of the State to promote a better understanding of methods of guarding against or controlling hog cholera. These were attended by a total of 49 vet-

erinarians of 18 counties. In addition, personal visits were made to veterinarians for the purpose of securing uniformity in treating hog cholera. Much time was given to what are called "trouble visits" to farms where hogs and other animals were believed to be in particular danger, and to correspondence growing out of inquiries concerning diseases of animals. In connection with the animal-husbandry departments a brood-sow campaign was conducted in 12 counties. Forty-five meetings were held, with a total attendance of 2,096.

Seed work.—Tests of seeds and grains were made for the benefit of farmers and seedsmen, the number of samples tested being 3,972, an increase of 637 over the previous year. Of the total number of tests made 1,111 were for purity and 2,329 were for germination. Examinations were made for dodder, Canada thistle, and seeds of a few other noxious weeds.

Entomology.—Extension work in entomology consisted of giving information by letter to county agents and others, preparing cases of insects for exhibition at the State fair and county fairs, and making a few trips to various parts of the State for the purpose of making local examination of insect depredations in order to recommend methods of control.

Forestry.—The extension department in cooperation with the Forest Service of the United States Department of Agriculture furnished help to the county agents in presenting the subject of woodlots to the farmer. A special bulletin on farm-woodlot timber was prepared as a part of this work.

Farm-management demonstrations.—Demonstrations were continued during the year by three farm-management demonstrators, one of whom worked entirely in counties which did not have county agents. The demonstrations started in five counties during the previous year were continued and the work was taken up in eight other counties. The demonstrators and county agents reached 883 farmers, of whom 231 had cooperated in the work for two years. As a result of the assistance given these farmers in summarizing and analyzing their farm business 274 decided to make some change in the organization or administration of their farm business in an effort to make their farms more profitable.

Although there was no regular account book available until near the end of the year, 238 farmers were sufficiently interested that they expressed a desire to keep a more accurate record of their farm transactions, and were therefore assisted in starting simple farm accounts. In 3 of the 13 counties there were no county agents, and the work was conducted entirely by one of the farm-management demonstrators.

During the holiday season a number of students were given some experience in field work as a supplement to their regular class work in farm management. They were of considerable assistance to the farm-management demonstrators and county agents.

Exhibits.—Exhibits were made an essential part of all short courses and at many of the farmers' institutes. These exhibits were so planned as to be definitely educational. Exhibits were also prepared with the special purpose of being sent to county fairs and fall festivals. Occasionally they were furnished to summer assemblies or chautauquas. These special Purdue exhibits were displayed at 20 different places. The reported attendance at these various places of exhibit ranged from 1,500 to 57,000, with a total of 504,300.

Farmers' institutes.—Indiana has a well-developed farmers' institute system in charge of an experienced superintendent. The institute season began November 15, 1915, and ended February 26, 1916. During this time 342 one-day, 152 two-day, and 2 three-day institutes were held, a total of 496, with 1,515 sessions and an attendance of 276,013.

OUTLOOK.

The centralization of administration of extension work has resulted in organization of activities under various projects designed to meet the needs of the various communities of the State, and of all the people of those communities. The extension workers while associated with subject-matter departments devote their entire time to extension work and thus come to think in terms of extension and of the means by which their work can be most effectively extended. The method of handling publications effects a great saving and probably reaches all who would be benefited by them. The State vocational-education law provides in part for the support of county agents and club work. Before an agent is employed for any county the assistant county-agent leader goes to the county and arranges for the organization to support the agent. With the adoption of more definite projects for the work of the agents and with the help of supporting organizations and college specialists, this phase of extension work is certain to continue the most important feature of the work in the State.

The home-economics work through the organization of classes which meet throughout the year and pursue definite lines of study and work as outlined by the leader is illustrating a most efficient means by which the people learn to do for themselves.

The boys' and girls' club work is definitely and effectively associated with the public-school system. The cooperative leader employed is the State superintendent of vocational education. Through club work has been developed a method for the practical teaching of

agriculture in the public schools and associating it definitely with the home. The very large percentage of the enrollment completing the work required was made possible through paid local leadership through the summer vacation.

IOWA.

Division of Extension, Iowa State College, Ames.

R. K. BLISS, *Director*.

Organization and administration.—The extension work in Iowa has continued under organization and administration similar to that of last year. On July 1, 1915, a county-agent leader was appointed, thus relieving the extension director from some of the duties of the previous year. Very few changes were made in the personnel of the extension staff during the past year. The specialist in dairy manufactures resigned and a new man was appointed. Two county agents resigned and several additional agents were employed. For every working day of the year the extension division held an average of 20 meetings, delivered 17 lectures, conducted 11 demonstrations, judged 3 exhibits, visited 26 farmers on their farms, mailed 31 farm-building plans, reached 1,986 people, and traveled 1,913 miles.

Publications.—During the fiscal year ended June 30, 1916, publications were issued as follows: Agricultural engineering, 2; animal husbandry, 1; correspondence courses, 6; dairying, 2; farm crops and soils, 3; home economics, 45; horticulture, 2; poultry, 2; club work, 6; and miscellaneous, 2. Five posters were published and 650,000 pages of mimeograph work were made.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$28, 781. 18
Smith-Lever, State	18, 781. 18
United States Department of Agriculture, farmers' co-operative demonstration work'	15, 991. 56
United States Department of Agriculture, Bureau of Animal Industry	4, 215. 00
State appropriations	68, 428. 43
County	4, 160. 00
Other sources within the State	74, 700. 00
Total	215, 057. 35

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, extension schools, boys' and girls' club work, prevention of animal diseases, farm-crop demonstrations, truck crops, and pomology. Funds from the United States Department of Agriculture were used in the support of the

following projects: County agents, boys' and girls' club work, dairying, dairy manufactures, and farm management.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 11; June 30, 1916, 16; funds expended, \$49,554.53.

The work was conducted as last year, with a county-agent leader in charge. In March an assistant county-agent leader was appointed. In practically every county there is a farm-improvement association organized to conduct the county-agent work. The State law provides that the people of the county may vote funds to carry on the county-agent work. In only one or two counties, however, has a vote been taken, Black Hawk County being the only one in which the work is supported by funds voted by the people. In each of the other counties the membership fees of the farm-improvement association and local subscriptions provide the county funds.

In most of the counties the main lines of the county-agent work are written up in definite project form. These projects include (1) seed-corn testing, (2) seed-corn selection, (3) oat-smut work, (4) corn variety tests, (5) orchard spraying, (6) farm management, and (7) short course work. These projects are State wide in application. Other lines of definitely planned work are (8) winter vetch improvement; (9) alfalfa improvement, including inoculation and liming; (10) hog feeding; (11) potato improvement, including seed selection and treatment of seed for scab; (12) poultry improvement; and (13) live-stock judging. Much of the project work was organized in campaigns at which the county agents were assisted by specialists from the college. This was especially true in the extensive seed-corn-testing campaigns of last spring.

One thousand six hundred and seventy-three definite demonstrations were conducted, at which 843 meetings were held, attended by 26,569 people. The most important demonstrations were those relating to cereals, horticulture, control of plant diseases, forage crops, and live-stock sanitation.

A seed-corn campaign in Black Hawk County was started during the early part of September, 1915, immediately after the first frost. Meetings were held, seed-corn posters were sent out, and through the cooperation of the papers of the county every effort was made to bring to the attention of the farmers the necessity of picking seed corn from the field wherever possible. A little later a series of corn shows was held in the county, at which over 300 samples, including the exhibits of 10 ears, 20 ears, and 30 ears were brought in. It was

noticeable that even in the first series of tests that seed corn which had been saved early in the season and properly cared for was the best.

In the spring of 1916 an additional campaign was conducted in cooperation with the county superintendent of schools. To each of the boys and girls in the country schools was sent 10 envelopes, properly numbered and stamped. Six kernels of corn from each ear of a sample of 10 ears were placed in each envelope, and all were returned in a larger envelope. These were tested in the county agent's office, and the record of the test, together with the rag-doll tester, were returned to each boy or girl sending them in. In all, 915 tests were made. These tests, together with the tests made on the 300 samples of corn brought in at the corn shows in the fall, and 300 other tests which were made on crib corn and farmers' samples, made a total of 1,515 tests. Most of these were made on corn which had been selected early in the season and showed a germination of a little better than 50 per cent.

A seed-corn testing station was organized. Within the county it was possible to locate but two cribs of corn of any quantity making a good test. These two cribs of corn were purchased by the association, and a seed-corn department was added to the testing station. The total amount of corn purchased by the association was 1,104.6 bushels. Of this amount, 536.5 bushels were sold as tested ear corn, 429.8 bushels were sold as shelled corn with a test of 90 per cent, and 143.3 bushels were sold as waste and discarded corn. At the close of the testing station the association had on hand over 200 testers and all of the equipment which was used. The work of the station reached directly 383 farmers who either purchased seed corn or brought in their seed corn to be tested. Three thousand three hundred and eighty-five people visited the station while it was in operation. The corn shows were attended by 1,500 people, 2,000 people were present at the meetings which were held, and over 1,500 were reached by the samples tested during the educational campaign. In addition to this, many seed tests were made for farmers on samples from their cribs and from seed companies. As a result, over 95,000 acres of corn in Black Hawk County were planted with the tested seed. Similar campaigns were conducted in other counties.

Home economics.—Ten people were employed full time under this project. The things that are being extended through the home-economics section are essentially: (1) The budget system of accounting, (2) teaching the principles of cookery with demonstrations, (3) invalid cooking, (5) feed and care of infants and care of sick, and (5) art and design. During the year about 124 short courses were held, a large number of them being full six-day courses. About

a month was given to county tours. Assistance was given at 61 farmers' institutes, 19 fairs, 12 conventions, 13 picnics, and 15 rural life and home meetings. This work reached over 67,000 people. The home-economics force cooperated with the United States Government March 4 to 11 in a "better-baby week."

Extension schools.—During the year 1915-16, 36 six-day schools, 16 three-day schools, and 6 three-day community short courses were held. At the six-day schools the extension division was represented by two instructors in farm crops, two in animal husbandry, and two in home economics. The year 1916 marked the beginning of a change in plan of these larger courses toward the smaller schools, with less expensive courses, with a greater degree of specialization in the different subjects, and a reduction in cost from about \$1,000 to about \$300 per school. Six-day schools are held during the months from December to March. In the three-day schools the extension division is represented by one instructor in each of the three lines mentioned above, and only a small amount of equipment is taken. Live stock and other material used for demonstration purposes is secured locally. A three-day school is held in any county having an agent at a cost to local people of \$75 to \$100 each. County agents are especially pleased with the three-day schools as a means for developing the projects under way in their county. The three-day schools are held from October to April.

In the community short courses instruction is given in horticulture, poultry, dairying, and home economics, the local people selecting such subjects as they desire. The community short courses are usually held in winter months closing about the middle of February.

No follow-up work is attempted in extension schools, and accurate data were not kept as to the attendance, but it is estimated that at the three-day schools there was an average attendance of 250 people, each of whom paid the membership fee of 50 cents for the course.

Boys' and girls' club work.—Club work was under the direction of the State leader and three assistants with headquarters at the college. A few temporary leaders were employed for a short time in the follow-up work during the summer vacation period. Close cooperation is maintained between the State college, through the leaders, with the county agricultural agents, county superintendents of schools, breeders' associations, and county and State fairs for the active support and direction of the work. Project agreements are prepared and signed by the cooperating parties, such as department of education, breeders' associations, and teachers' college.

The total number of projects undertaken in the State during the year was 8, with a total enrollment of 14,946. This enrollment was grouped into 391 local clubs. The number of members actually un-

dertaking the work was 10,659, while 5,267 members completed all requirements in the work. The total value of products by those who finished the work was \$251,914.89. Sixty per cent of the enrollment in the State was secured and directed by unpaid local leaders. Seventy-five per cent of the results were obtained by the paid local leaders. Fifty per cent of the entire club membership for the year were also members in 1915. The college prepared and distributed 81,500 pieces of follow-up instruction to club members.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 56 clubs, 538 members, reporting 3,754 acres, producing 239,505 bushels of corn; garden, 18 clubs, 3,256 members, reporting 6,254 square rods, yielding products estimated to be worth \$21,522.16; garden and canning, 14 clubs, 241 members, reporting 17,419 quarts of canned food and fresh vegetables, estimated to be worth \$2,910.90; baby beef, 30 clubs, 252 members, reporting a production of 237,930 pounds of beef; pig, 251 members, reporting a production of 89,914 pounds of pork; sewing, 308 members, reporting a production of 1,998 pieces; handicraft, 286 members, reporting products estimated to be worth \$2,403; cooking, 144 clubs, 144 members, reporting products estimated to be worth \$3,024.

Prevention of animal diseases.—Under this project the work was done in (1) teaching horse breeders how to distinguish unsoundness in their animals, (2) teaching sanitation in the control of animal diseases, (3) teaching the farmer how to utilize the veterinary service of the college and local veterinarians, and (4) teaching how and when to use hog-cholera serum. Extension workers of this project gave 224 lectures, 86 demonstrations, and 2 judging exhibitions, reaching about 19,000 people.

Farm crops.—Considerable attention has been given to comparative demonstrations of local varieties of corn to determine the best varieties for the several localities in the different counties. Oat varieties were compared in some counties; alfalfa demonstrations were started in six counties. Special attention was given during the year to a State-wide seed-corn-selection campaign in which various members of the extension staff and county agents took active part. This campaign resulted in a marked increase in the yield per acre of corn during the season of 1916 in spite of unfavorable weather conditions and of an unusually poor prospect for seed in the fall of 1915. Further information is given in the report of county-agent work.

Truck crops.—In Iowa it appears that the early potato is the biggest truck crop in the State, and much attention was given by the extension specialist toward the prevention of the early blight. In the southeastern part of the State special attention is given to the

cabbage crop, especially in the prevention of disease. Considerable effort was given toward bringing buyers and growers of potatoes, onions, cabbage, etc., together so that the farmers may realize greater profit from their farm work.

Pomology.—During the year, 138 meetings were held in which pruning and spraying demonstrations were given. Eight fairs and 1 fruit show were attended; 12 farm automobile tours were made in as many counties, 6 farms being visited on each tour, thus giving the farmer an opportunity to become thoroughly acquainted with the pomological needs of the different counties. An important phase of the work was the listing of buyers and growers of apples and the exchange of these lists between the two, thus putting the purchasers and marketers in touch with each other. The major portion of the specialist's time has been given to orchard fruits and the remainder was spent on small fruits, including grapes.

OTHER EXTENSION WORK.

Animal husbandry.—Five men are engaged in animal-husbandry extension work, giving special attention to (1) better methods of feeding, (2) better breeding, and (3) marketing. Work was done chiefly through extension schools, farmers' institutes, and three-day short courses. At institutes and short courses colt shows were usually held, sometimes a calf show, and more recently pig shows were added. The men engaged in this project held 414 meetings, gave 729 lectures, 482 demonstrations, and 235 judging exhibitions, attended by 84,207 people.

Poultry.—Chief attention has been given, first, to marketing and, second, to the production of poultry and eggs. During the year the specialist has assisted two egg-marketing associations, through one of which about 35,000 dozen eggs were sold. On an average the members of one association received an increased price of 4 cents per dozen, totaling approximately \$75 per member. The eggs are graded by size on the minimum weight of 2 ounces each and are individually stamped so that the producer can be located. In the other association the members receive in May about 1 cent per dozen premium; in June, 3 to 4 cents; in July, 5 cents; and in August, 10 to 10½ cents, the marketing being done in Chicago through the agency of a local merchant. Two days each were given to 26 extension schools, three community short courses were conducted, a State-wide "kill the rooster day" campaign was conducted in cooperation with county agents, attention given to construction of poultry houses, and teaching farmers methods of poultry management. As the result of "kill the rooster day," one county agent reported that a local buyer purchased three carloads of roosters in a single day. After this cam-

paign, buyers reported they were able to pay 2 cents a dozen more for eggs than usual because of their improved quality.

Dairying.—Special attention was given to the organization and supervision of cow-testing associations, which have increased from 13 to 23 during the year. Great impetus was given the cow-testing movement through the dairy-test association meeting held in connection with the dairy-cattle congress at Waterloo. At this congress six of the cow-testing associations each furnished five cows. Some of them were the best cows in each association and others were the poorest from the standpoint of production. The records of the animals were placed beside them, and farmers were given an opportunity to see that animals that look alike vary widely in their profit-producing ability. The cow-testing association work has resulted in increased production of cows of from 75 to 150 pounds of butter fat per cow. The work of the associations has also increased the selling price of cows. At one sale cows from herds in the testing associations sold from \$30 to \$40 per head more than cows in similar condition from other herds. A summary of letters from testing-association members shows that the association has increased the value of their cows 28 per cent. Nearly all of the associations are doing more or less cooperative buying, most of it being conducted through the local leaders. One association saved \$702 in one year by thus purchasing feed, binder twine, coal, fence posts, salt, flour, etc. The associations usually have monthly meetings, or at least 8 or 10 meetings during the year.

During the year a cooperative bull association was organized and five pure-bred bulls secured for service in the association at approximately the same cost as the members of the association formerly paid for scrub bulls. With one exception, all members of the bull association are also members of a cow-testing association. Through this bull association cooperative arrangements were made with the extension division for assistance in the eradication and prevention of tuberculosis and contagious abortion. The work of this project was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Creamery work.—During the year assistance was given to 20 creameries in methods of management, the installing and use of modern machinery, and methods of controlling quality of products, so that a better price could be secured. These creameries cooperated with the extension division by paying the expenses of the field man during the time they received his assistance. The resulting improvement in the quality of the product was satisfactory and has in many instances enabled the creamery to operate at a profit, when previously it appeared that they would have to discontinue their business, and thus take away from the farmers a market for their

dairy products. The work of this project was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Farm-management demonstrations.—The demonstrations started in five counties a year ago were continued in all counties except one, which was temporarily discontinued because of a change of county agents. In addition, demonstrations were launched in three other counties under the leadership of the agents.

Of the 326 farmers who cooperated with the county agents in this work last year, 174 cooperated again this year. In addition, there were 196 farmers who were included in the demonstrations for the first time. County agents and farm-management demonstrator assisted 224 farmers to start such accounts. At the end of the year these farmers were assisted in summarizing their account books and given some help in interpreting the accounts as a basis for improving their farms.

Agricultural engineering.—Special attention was given to the blue-print service during the past year, by means of which plans for farm buildings are distributed. Since October, 1915, 9,652 blue-print sheets were issued. These were sent to 1,456 people in 438 places in Iowa and into 45 other States, and also to Washington, D. C., Canada, and Hawaii. The blue-print service promises to be an important factor in improving the quality of these farm buildings.

Correspondence courses.—The correspondence courses for teachers, which were established in 1915, were continued throughout the year. During the first year 207 teachers were enrolled. This year the number has increased to 375.

Agriculture in schools.—In an effort to reach every boy and girl in the State with a message of better agriculture, the extension division has published certain bulletins especially prepared for school work. Assistance was also given to teachers' institutes.

Landscape gardening.—At the close of the first year of extension work in landscape gardening there appeared to be a widespread demand among farmers for assistance in beautifying their premises. Assistance was given in outlining landscape plans at 50 farmers' institutes. Plans were also furnished for 15 churches, cemeteries, and public buildings.

OUTLOOK.

The extension forces of the college are well organized, and the lines of work under way are those designed to meet the needs of the State. County-agent work has made satisfactory progress. Additional counties are organizing and will be ready for cooperation as rapidly as extension funds are available. The adoption of def-

inite written projects by the agents has been an important feature of the work of the year.

The home-economics work is organized to meet the needs of the women of the entire State. There is danger that the greater and more definitely organized demands of urban women for home-economics extension work may so absorb the time of the extension forces as to limit unduly the work with farm women and girls. Through well-organized extension schools practically all lines of work are being forwarded. In the club work need is seen for more paid local leadership to insure the success of the work during the summer vacation period.

KANSAS.

Division of College Extension, Kansas State Agricultural College,
Manhattan.

E. C. JOHNSON, *Dean.*

Organization and administration.—The organization of the division of college extension has continued under five departments, as last year, namely, institutes and demonstrations, rural engineering, home economics, home-study service, and rural service. The largest department is that of institutes and demonstrations, in which practically all the field-extension work in agriculture is conducted. In this department are the county-agent work, boys' and girls' club work, extension schools, farm and home institutes, and the agricultural specialists working in whole or in part under the Smith-Lever funds. The present dean was superintendent of this department until September 1, 1915, at which time Vice Dean Miller resigned, and E. C. Johnson was made dean of the division of college extension on October 1, 1915. He still remained the administrative head (superintendent) of the department of institutes and demonstrations, and in view of this fact a number of his former duties have been delegated to project leaders, so that the assistant county-agent leader has charge of the county-agent work; the assistant to the superintendent of institutes and demonstrations, the institute work; the assistant superintendent of institutes and demonstrations and specialist in dairying, the extension-school work; the boys' and girls' club leader, the club work; while the specialists are directly responsible to the dean of the division for the State-wide demonstration work in their project. Conferences of the heads of the departments and the dean of the division are held from time to time, so that all the work of the division is closely coordinated.

Harmonious working relations have continued with the three State normal schools and the State department of education. During the

year 5 members of the staff resigned and 13 people were appointed to the extension staff, including 6 county agents.

Publications.—During the year 8 extension bulletins and circulars were issued, totaling 189 pages and 102,000 copies. In addition to the regular publications mentioned, the extension service has prepared a large number of concise articles relative to various phases of rural life, which were sent through the journalism department of the college to the general press and extensively used throughout the State.

From 12,000 to 20,000 copies of each bulletin or circular are printed and distributed among members of the farm bureaus and institutes which constitute the regular mailing list. Copies are also sent to the officers of the numerous farmers' associations and county superintendents of schools. The mailing list is revised each year and bulletins are distributed to the section of the State where their subject matter is applicable.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ending June 30, 1916:

Smith-Lever, Federal	\$24, 555. 45
Smith-Lever, State	14, 555. 45
United States Department of Agriculture, farmers' co- operative demonstration work	13, 310. 63
United States Department of Agriculture, Bureau of Animal Industry	100. 00
College	45, 975. 91
County	4, 792. 99
Other sources within the State	9, 511. 10
Total	<hr/> 112, 801. 53

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, extension schools, boys' and girls' club work, animal husbandary, poultry demonstrations, dairying, crops and soils, horticulture, entomology, irrigation and drainage, and farm management. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, and farm management.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 40½; June 30, 1916, 51½; funds expended, \$41,494.61.

The county-agent work in Kansas is under the direction of the extension director as county-agent leader. An assistant county-agent

leader was appointed February 1, 1916. At the beginning of the year there were 10 counties with an agent at work, and there were 30½ counties in which there were 4 men at work known as district agents. During the year one more district was added containing five counties and four counties with county agents were added. In every county excepting those in the districts a farm bureau is organized before an agent is employed. These farm bureaus have been organized largely for the purpose of raising funds to support the county agent and to represent the county in its cooperative relationship with the State college and the United States Department of Agriculture, but during the year effort has been made to reorganize the farm bureaus with local committeemen representing each community within the county for the purpose of advising with and aiding the agent in his work.

The main lines of work are as follows: (1) Corn, (2) wheat, (3) pruning and spraying, (4) hog-cholera control, (5) farm management, (6) alfalfa, (7) Hessian-fly control, and (8) the introduction of new crops, such as sweet clover and Sudan grass, etc. The county-agent work is not on a project basis, but an effort is being made to secure the adoption of definite projects in all counties.

One thousand two hundred and thirty-seven demonstrations were conducted, at which 729 meetings were held, with an attendance of 19,398. These were mainly along the following lines: Forage crops, live-stock diseases, horticulture, cereal clubs, control of insect pests, soil improvement, and general live-stock work.

Much wheat is grown in Kansas and the damage done by the Hessian fly has been enormous. In Harvey County wheat was sown on various dates ranging from September 20 to November 1. On fields of wheat sown before October 4 the yield ranged from 1 to 3.3 bushels per acre, while on fields sown after October 11 the yields ranged from 15.1 bushels to 16.9 bushels per acre. A campaign was conducted this year from schoolhouse to schoolhouse in the county, as a result of which not more than two or three farmers in a township sowed their wheat before the fly-free date. Similar work was done in other counties. A total of 68,819 acres was sown under the agent's direction or at his suggestion, besides many thousands of acres by those who attended meetings or noted the results of demonstrations of preceding years.

Much loss has occurred in Kansas from hog cholera, and the agents are making especial effort to assist in its control. In Atchison County the county agent reports that the loss as shown by the assessor's figures in 1915 was 3,224 head. Veterinarians of the county reported that they vaccinated 12,543 head. An organized effort was made by the farm bureau and the county agent to enlist the farmers

in reporting outbreaks, in disinfecting and cleaning up their farms, and in giving a serum treatment as a preventative. One thousand posters were placed about the county, articles were written for the local press, and the granges, farmers' unions, schools, churches, and teachers' associations were cooperated with in reaching the people. Nineteen meetings were held attended by 991 people. The farm bureau has entered into an agreement with the veterinarians whereby the price of serum was reduced from $2\frac{1}{2}$ cents per cubic centimeter to $1\frac{1}{2}$ cents, and the veterinarians were largely employed in doing the vaccination work. As a result but 14 cases of cholera were reported, and in no case did the disease spread to adjoining farms. Altogether reports thus far show but 120 hogs have been lost, and of these over 100 were in four herds. The reports are not all available for this year, but probably as many hogs were vaccinated as were vaccinated a year ago. Most of the vaccination, however, was done in season with healthy hogs to prevent their having the disease. It is estimated that at least \$30,000 was saved the county by this work. Much loss occurs from blackleg. As a result of demonstrations 820 head were vaccinated, whereas before this campaign but little vaccine had been used. In Cloud County 7 vaccination demonstrations attended by 46 men were given in 7 different communities. In two herds in which calves had just died the vaccination prevented further loss. A total of 2,647 head was vaccinated in the State by the various agents as demonstrations to show the efficiency of the blackleg-vaccine treatment.

Home economics.—Work for the year included assistance at 229 two-day farmers' institutes, having 758 sessions, and an attendance of 57,238. Institutes are regarded as the key to this work, and arrangements are made at them for all other such work throughout the State. Twenty-six five-day extension schools for women were held, at each of which six courses were given. A two-weeks' course in dressmaking was also conducted. Ninety-eight home-makers' clubs were organized, which held monthly meetings; and 3 courses in cooking and 2 in sewing, each course consisting of 20 lessons, were given to 18 clubs. The judging of products made under the instructions thus given was made an educational feature at 26 fairs. Calls from women's clubs for various lectures were responded to, and clubs were urged to organize home-economics sections. Ten workers were employed full time throughout the year and other assistants were employed as needed.

Extension schools.—Thirteen extension schools were held during the winter months. At nine of these, courses in both agriculture and home economics were given. The average daily attendance was 39 men and 34 women. Two of these schools were held in cooperation with State normal schools, two with the State college, three with

county high schools, and two with consolidated rural schools. Follow-up work was arranged for by the soil specialist, who returned to do personal work with four to eight farmers in the community.

In June an extension school was conducted in cooperation with the Haskell Indian School for teachers of agriculture and home economics in Indian schools. The attendance was over 200.

Boys' and girls' club work.—Club work was conducted by the State leader in charge with the addition of one assistant for the year 1916. Leaders cooperate with the county agricultural agents, county superintendents of schools, rural-school teachers, and other institutions and individuals interested in the work. The department of public instruction cooperates closely with the leaders in the promotion of the work by indorsing the work through public addresses, by publications and letters, and by recommending to the county superintendents and teachers that they take up the work effectively in the communities in connection with their schools. The club work is arranged and carried on through club groups with a volunteer local leader in charge in the usual manner. The State leader, in cooperation with county and local leaders, prepared and furnished a system of follow-up instruction and provided direction for field meetings and demonstration schools. Personal visits to club plats of members were made and fairs and club exhibits conducted as a means of follow-up work. These fairs and club exhibits served also as an encouragement to club members in working out better grades and standards of products and as an agency through which leaders collected all club reports.

Twelve club projects were carried on during the year with 213 clubs, as follows: Seventy-five garment-making clubs, 55 corn clubs, 28 sorghum clubs, 23 bread-making clubs, 21 pig clubs, 18 handicraft clubs, 18 poultry clubs, 16 home-garden and canning clubs, 16 mother-daughter clubs, 12 home-garden clubs, 10 tomato clubs, and 3 potato clubs.

The total club enrollment was 5,062, of whom 3,937 started work on their projects and 1,705 completed all work. The total value of all club products was reported at \$26,766.98; total cost to club members in producing these products, \$9,523.26; cost of leadership, supervision, and overhead charges, \$3,500.

The garment-making project, with a total enrollment of 1,346, has 1,100 members continuing the work for the winter. On December 1, 1916, the club members had made 250 apron sets, 250 night dresses, and 45 school dresses, and had done 205 pieces of darning and 205 pieces of patchwork. In the corn project 55 clubs were organized, with a total enrollment of 854 members, of which 14 clubs, with 340 members, completed all work. Five thousand bushels of corn were produced, 500 bushels of which were hand selected. The total value of the corn produced was \$4,000. The average yield per acre was

14.4 bushels. The low yield was largely due to severe drought. In the pig project 21 clubs were organized, with a total enrollment of 239 members, of which 170 members completed all work, producing 58,000 pounds of pork, valued at \$6,000. The pork was produced at a cost of $4\frac{1}{2}$ cents a pound.

The Glenwood Mother-Daughter Club, of Leavenworth County, is a notable example of an unusual phase of the work in the State. Thirty mother-daughter teams or units constitute the membership and cover a typical rural community 10 miles square. The country church is the center of club activities, and there is no railroad at the center. Eleven of the mother-daughter teams canned over 100 varieties of food products at the county farm-bureau exhibit. This club has helped to unify the community, improve the church work, secure better prices for farm products, remodel and improve the country school, improve the roads, and plans to carry out a definite 10-year program of club work.

Animal husbandry.—From September 1, 1915, when the present leader assumed the work, he judged live stock and gave judging demonstrations at 8 fairs; conducted judging demonstrations at 50 farm and home institutes, discussing breeding and management of live stock; attended 15 community assemblies of four days each, and conducted field trips to study live stock where demonstrations were held. He also located 15 pure-bred sires for farmers and assisted 30 others in locating breeding stock. He planned and constructed a self-feeder for swine which is cheap and efficient. He prepared a classification list for live stock for use of agricultural fairs, and assembled material and lantern slides for six illustrated lectures on live stock, to be used by county agents and schools.

Poultry.—Attention was given to the better management of the farm poultry flock and to the marketing of poultry and poultry products. During the year 30 poultry schools were conducted, and 60 annual meetings of farm-home institutes were attended. All poultry schools held in counties having county agents were conducted at the request of and under the supervision of the farm bureau and the county agent. About 30 individual farmers were visited and suggestions for the construction of 35 poultry houses were given. A large number of houses were remodeled on suggestions of the specialist. A "rooster week" for eliminating roosters was conducted in cooperation with poultry buyers of the principal markets, who agreed to pay an extra cent per pound above prevailing prices for all roosters shipped them that week. These buyers report heavy purchases, indicating that the week was well observed.

Dairying.—The leader of the dairy project is also leader of the extension-school project. About six months of his time was spent in dairy-demonstration work, two months in the organization of ex-

tension schools, and four months in teaching dairy subjects in these schools.

The six months devoted to demonstration work were spent in holding 16 farm meetings, with an attendance of 197 dairymen; 2 two-day dairy schools, with an attendance of over 100 different dairymen; 7 one-day meetings, with an attendance of over 250; and 8 evening schoolhouse meetings. One hundred and thirty-five different farmers were visited and 186 farm visits made. Definite plans for improving dairy buildings or constructing new buildings were worked out for 51 dairymen and farmers who have either completed the improvements suggested or have buildings now under construction. Eighty-six different farmers requested and received visits for instruction in rearranging buildings, improving methods of handling milk, or aiding in doing other things necessary to enable them to meet the requirements of the board of health of Kansas City, Kans., for grade "A" milk producers. Of these, 47 made necessary changes and received scoring that enable them to sell grade "A" milk and cream.

Through the efforts of this specialist three communities are developing into strong dairy centers, and the fourth community has started that way. Two hundred and thirty-four high-grade dairy cows were brought into these communities in developing plans for live-stock improvement.

This work is conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Crops and soils.—The soil specialist attended 16 five-day schools in winter, and during the following summer he returned to the localities where the schools had been held, visiting a few of the farmers in each locality for demonstration work. Soil samples were secured, and after they had been analyzed by the experiment station instructions for soil management were given the farmers. The specialist spent some time with county agents instructing them in the needs of Kansas soils and assisted them in securing soil samples, lecture slides, and charts for their work.

One of the big problems of the State is the maintenance of humus and nitrogen, and the specialist is giving the county agents assistance in handling this problem.

Horticulture.—The object of this project is to conduct demonstrations in the management of commercial and home orchards and home gardens and to hold extension schools in horticulture. Orchard work has received more attention than the other horticultural lines thus far. Agreements have been entered into by the farm bureaus and the owners of 39 orchards in 10 different counties for conducting demonstration work, and 27 additional contracts were arranged directly with the growers, 21 of which were in counties having

county agents. During the season of 1916, 175 farm visits were made and orchard meetings held, with an attendance of about 2,000.

That the orchard-spraying work as shown in demonstrations has been found valuable by the farmers is indicated by their purchases of copper sulphate, which has been as large as in years before the price advanced from 400 to 800 per cent. The work of this project is closely related to the project in entomology.

Entomology.—This work was suspended September 1 and was taken up again March 1, when the present leader was appointed. The initial work of this leader consisted in spraying demonstrations in 21 orchards for the control of fungus diseases and insect pests. Each orchard was sprayed four times, and the orchards served as a center for group meetings. Nine pruning demonstrations were given and visits made to 20 orchards to give advice on spraying. Early in the season the green bug invaded several counties in the southern part of the State. It was found that parasites would soon control this invasion, and the farmers were advised to delay planting a week. Those following this advice escaped the ravages of the bug and were saved the expense of spraying. Plans under way contemplate the systematic control of the Hessian fly and continuation of the orchard-spraying work.

Drainage and irrigation.—The object of this work is to promote a better understanding of the value of irrigation and drainage, to assist farmers in planning farm-drainage systems and individual irrigation plans, to give assistance in the formation of drainage districts, to provide plans and specifications for drainage and irrigation work, and to give general supervision during construction of such reclamation projects. The work during the year consisted largely of visiting and organizing drainage systems where they were needed. Blue-print sketches were made for 50 such projects. Twelve other cooperative drainage projects involving 70,000 acres were investigated and preliminary reports were made. About 40 projects in irrigation work were assisted during the year. Twelve irrigation meetings and 20 drainage meetings held in 20 different counties were attended by the engineer.

Farm-management demonstrations.—Farm-management demonstrations in Kansas were continued during the year by the county agents with the assistance of the farm-management demonstrator.

In addition to the six counties in which demonstrations were started last year, five other counties took up the work and 1,018 farmers were assisted within the year in summarizing and analyzing their farm business. Of these farmers, 300 had received some assistance from the county agent or farm-management demonstrator last year. At the end of the year 278 farmers had made definite arrangements to keep a more accurate record of their business, and

in this way hoped to be able to study their business to better advantage and possibly make the farm more profitable.

To spread the work throughout the county and thus give other farmers an opportunity to study their farm business in this manner, 45 farmers' meetings were held at which the farm-management demonstration work was presented.

A large number of farmers have availed themselves of this opportunity to study their farm business by keeping a simple record of the farm transactions so that at the end of the year they themselves can determine what they have received for their own labor and can decide how to modify their farm organization to increase its earnings.

This type of extension work among the farmers will continue to be one of the important phases of work in the State.

OTHER EXTENSION WORK.

Highway engineering.—The work has consisted of the preparation of plans, specifications, and estimates for the construction of roads and bridges in various counties of the State. Services of the highway engineers were called for in 52 counties; subjects of good roads and bridges was presented at 80 farm-and-home institutes and public road meetings; five good-road days were managed, at which 1 to 1½ miles of demonstration earth-grading work was carried out. A one-week State-wide conference was conducted for highway engineers and road officials; a two-day road and bridge school was held in one community; and road and street work was conducted in 52 counties. The estimated cost of the work supervised is \$267,500.

Bridge plans, specifications, and estimates were furnished for 307 bridges and culverts, having a total value of \$490,000. The construction of 262 bridges was supervised, and most of them inspected, bridge work being done in 74 counties.

Rural service.—Under this project it is the aim to develop social features in rural communities along with the industrial and economic features. Eight assemblies each continuing through four days were held, at which there has been an average attendance of about 250, composed largely of leading farmers, ministers, and teachers. The forenoon of each day is usually spent in field visits by the men; the women are assembled in a schoolhouse or other meeting place and given instruction in some phase of home economics; the children are assembled for instruction in games. In the afternoon a lecture is given on rural organization, followed by discussions. One-half hour is given to community singing, to which is added one or two readings as an entertainment feature. The children are taken to a schoolroom for a period of story telling. During the evenings

an illustrated lecture is given in addition to community singing and perhaps some feature of pageantry. The last evening a pageant is put on by the people of the community to quicken the interest in local features of history or the industrial development of the State or community. An important feature of the extension plan in this State is to form a strong central county organization under the auspices of which all phases of rural life shall be developed. By means of these community assemblies in which the science of agriculture and home economics is given a place it is expected that interest will be aroused in perfecting organizations which will ultimately result in securing a county agent who shall give particular attention to the agricultural features.

Farmers' institutes.—The organization of farmers' institutes are sometimes county-wide and sometimes represent small areas. The institute work is carried on for about one-half the year. Home economics has been an important feature in the institutes. Three women are employed to give all of their time to this work and one woman gives half time. In addition to these, three full-time assistants are employed with such other temporary assistants as are necessary. Practically all the force are college graduates. A record is kept of the work done in each community and the subjects presented, so that succeeding institutes do not cover the same ground. The principal subjects are kitchen management and equipment, foods, and clothing. There is also some cooperation in this work with the State board of health, whose literature is extensively used. The farmers' institutes are regarded as the key to all the other home economics extension work, since it is through these institutes that the lecturers and specialists come in contact with the women of the State and make arrangements for all kinds of home-economics extension work. If three meetings in addition to the annual meeting are held the institute receives \$50 from the State, provided there are at least 50 members of the institute. The college sends two representatives, a man and a woman. The meetings are for one and two days. In counties having agents it is intended to make the county agent responsible for the meeting and the subjects discussed. Local people supply at least one-half the program. Local demonstration material whenever obtainable is also used. The farmers' institute is believed to have an important place in extension work and will continue so until the State is well covered with county agents. All institute officers are urged to become farm-bureau members in counties having such bureaus. The total number of institutes was 350 and the attendance 85,344. Not including many local speakers, there were 35 lecturers, 22 of whom were from the extension staff and 13 from other sources. Of State appropriation for farmers' institutes \$9,770 were expended in conducting this work.

Home-study service.—In this work correspondence courses are given along three different lines: (1) Home-study college-credit courses; (2) noncredit-extension courses, being essentially vocational courses; and (3) free reading courses. Under these different classes reading assignments are made and questions sent out to be answered by the student. The credit courses are regular correspondence courses, carefully pursued under competent instructors, and are open only to those who have met resident-student requirements. A fee of \$4 is charged for each course, which consists of work amounting to three or four credit hours. There were 554 enrollments in this course during the year.

In the noncredit course 14 to 18 assignments on standard texts are made, the course being prepared by the home-study instructors in cooperation with the resident-teaching staff. A fee of \$3 per subject is charged. During the year there were 659 enrollments in these courses.

The free-reading courses are designed for the purpose of offering clear-cut, concise information along practical lines, and they consist of one assignment, based on a free bulletin of the agricultural college or the United States Department of Agriculture. No restriction is placed on enrollment and no fee is charged. During the year there were 2,491 enrollments in free-reading courses.

The total enrollment for the home-study services for the year was 3,721. This work is used in part as follow-up work where institutes and extension schools were held, field-demonstration work done, and boys' and girls' clubs conducted.

OUTLOOK.

The continuation of the work in Kansas along the same general lines as heretofore indicates a careful study of the needs of the State and a determination to hold to a definite plan of work. The county-agent work has had a steady growth with the organization of county farm-bureau associations and with further development of the project plan, this work should continue to meet with marked success.

Boys' and girls' club work through cooperation with the schools and with the county agents, and with the development of paid local leadership, is securing significant results.

The various needs of the State along lines of animal husbandry, soils, and crops, and home economics are being well cared for, with promising work under way in relation to the community life. The whole extension program seems well planned with respect to the needs of the farmers of the State, well coordinated, and effectively administered.

MAINE.

Division of Agricultural Extension, College of Agriculture, University of
Maine, Orono.

LEON S. MERRILL, *Director.*

Organization and administration.—The organization of the extension service was the same as for the preceding year. The only important change in the relations of the extension service to other parts of the institution was the cooperation of the forestry department in conducting forestry-extension work. The State department of agriculture cooperated with county agents and the extension instructor in dairying in the organization of cow-testing associations. The extension division cooperated with the State department of education in planning secondary school agriculture curricula so that more of the teaching might reach the farm home. Independent organizations throughout the State gave increased moral and financial support to the work.

Publications.—The publications were of two classes, namely, bulletins and extension news letters. Six bulletins, totaling 108 pages, were issued in editions of from 700 to 7,000. Three of the six were on boys' and girls' club work, one on the nutritive value of foods, one on handling the farm woodlot, and one on how to kill and market poultry. The news letter was distributed to the newspapers of the State and to persons whose names were on the classified mailing list. Six of the 13 news letters were on poultry subjects and were issued in editions of from 600 to 1,000. Two were on boys' and girls' club work and the remainder on miscellaneous agricultural subjects.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$14,388.28
Smith-Lever, State.....	4,388.28
U. S. Department of Agriculture, farmers' cooperative demonstration work.....	1,100.00
U. S. Department of Agriculture, Bureau of Animal Industry.....	400.00
College.....	3,436.80
Total.....	<hr/> 23,713.36

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, extension schools, dairying, soil fertility, farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of farm-management demonstrations. Funds from

outside the State not in cooperation were used in the support of county-agent work in six counties, and boys' and girls' clubs.

A detailed statement of expenditures and receipts has been received and approved.

County-agent work.—Four county agents were employed on co-operative funds during the year, being an increase of one over the number employed June 30, 1915, one agent working in two counties. Funds expended, \$9,854.71.

The work continued with the extension director as county-agent leader and an assistant. Carefully worked out follow-up plans were developed to ascertain the spread of influence from the demonstrations. There was no county support either financial or through county organization. Some of the granges have extension committees who cooperate with the agent.

While the work was not on a project basis, the lines of demonstration work were very carefully developed and rigorously followed. The general lines of demonstration work were as follows: (1) Economic production demonstrations. These were for the purpose of showing the value of all processes and factors included in a farm enterprise and also the relative value of enterprises. (2) Comparative demonstrations. These were for the purpose of showing the economic value of a single process in a farm enterprise. (3) Farm-management demonstrations. These included the relations of all the farm enterprises and their effect upon labor income and dealt, therefore, with the organization of the farm as a whole. (4) Boys' and girls' club work. (5) Extension schools. (6) Miscellaneous demonstrations.

The work in Maine was on a definite demonstration basis, the co-operating farmer signing a specific contract agreeing to do certain things relating to the demonstration. These were followed up closely by the county agent. In addition to these definite demonstrations the agent gave a large amount of advice on miscellaneous subjects. The following lines of demonstration work were emphasized: (1) Dairying. These demonstrations were for the purpose of securing the adoption of a balanced ration by the dairymen of the county and a more general realization of the value of weighing both feed and milk. As a result of these demonstrations in one county, 58 farmers adopted the balanced ration recommended by the agent and 16 purchased milk scales for the purpose of keeping more accurate feed and milk records. (2) Poultry demonstrations. These were for the purpose of improving housing conditions, feeding, and breeding. "Building bees" were held and a demonstration poultry house of the Maine type constructed by the county agent and the help of the demonstrating farmers assisted by the neighbors. As a result of

one of these demonstrations 16 other poultry houses were built or remodeled. During the winter 45 agricultural extension schools were held in counties with agents, with an attendance of 8,674. Illustrative of the influence of these schools, at one of them during the noon hour a local breeders' association was organized, 60 persons signed as cooperators in a poultry campaign, 10 men purchased their first set of milk scales, and 22 men formed a dairy production club to meet once a month. As previously indicated, careful follow-up methods were developed to ascertain the spread of influence of the demonstration. Illustrative of this, in one county 16 men copied a swine demonstration and 15 the dairy and poultry demonstration. In another county 7 men copied the orchard demonstration, and in another 15 men followed the demonstration methods pursued by the farmer in connection with spraying potatoes; in another 21 men purchased seed from the farmer conducting the oat demonstration, whose yield was 84 bushels per acre.

Home economics.—Thirteen three-day extension schools were held in six counties, with a total attendance of 2,093. Lectures were given at 36 meetings in 11 counties, attended by 2,214 people. Sixteen demonstrations were given with an attendance of 2,000 people. Nine farm women conducted demonstrations in keeping household accounts. Forty-five calls were made on farm women, 39 women were personally advised on some problem of the home, and 302 letters of information were written. A large portion of the work was centered around the subject of food, the basic principles of cookery being especially emphasized. Demonstration methods in presenting home-economics work were successful, and follow-up plans are being developed to determine the results of the work. The resident teaching staff of home economics at the college gave lectures at 77 meetings, having a total attendance of 3,489, and cooperated in conducting one meeting each week throughout the winter for the girls in one community.

Extension schools.—Fifty-eight extension schools were held during the season covering the months of December, January, February, and March. Of these, 13 were home-economics schools, the registration was 3,354, and the total attendance was 10,767. Each school dealt with one subject or a number of closely related subjects commonly grouped under one head. The following programs were offered through a period of three days: Animal feeding, farm crops, soil fertility, poultry husbandry, apple packing, orchard renovation, and home economics. The particular feature of the extension school is definite concentration upon one subject, and the use of some practice work by members of the school. A school takes its name from the principal subject offered, such as "Soil-fertility school," "Apple-packing school," etc. The county agent is the school leader of all

schools held in his county. Specialists assist the county agents in giving instruction in the subject taken up in the school. Demonstration material used consists both of local material for which provision is made in advance and apparatus supplied by the extension division. The follow-up work consists in actually doing some of the things that were discussed, and in a small way demonstrated at the school. For example, if instruction has been given in the building of a silo, the follow-up work consists in building a silo, not in showing a model of a silo or looking at charts and silo plans. The farmers have an opportunity to take part in every operation in its construction. The same method is carried on in connection with poultry-house construction and various other phases of farm practice. The interest which women took in agricultural subjects was indicated by the fact that 25 per cent of the attendance in some schools in agriculture were women.

Dairying.—This project had a very intimate relation to the dairy work conducted under the county agricultural-agent project. The leader, in addition to doing dairy work in counties not having agents, cooperated with the county agents, giving assistance to 7 cow-testing associations and 9 local dairy-cattle breeders' associations, assisted county agents in organizing 3 cow-testing associations and 3 dairy-cattle breeders' associations in conducting 2 silo-construction campaigns, 7 economic dairy-production demonstrations, 4 demonstrations at agricultural fairs, reaching 9,500 people, and in formulating herd-management recommendations for 229 farmers, owning 2,349 cows. During the year the leader of this project personally advised 261 persons in matters pertaining to dairy farming and made 436 official visits to others; and as assistant director, had supervision of 45 agricultural-extension schools and gave instruction in dairying subjects at 13 of these schools, having an attendance of 2,798.

Soil fertility.—This project included instruction and demonstrations in soil fertility, systems of crop rotations, economic handling of stable manures, selection and use of commercial fertilizers, drainage systems, and the use of lime, the work being conducted in cooperation with county agents. A survey of soil condition was made in all counties having county agents, and also in two counties where county agents were soon to be located; lectures were given at 8 meetings, having an attendance of 316; assistance was given in 6 extension schools, attended by 687 people; 10 cooperative demonstrations using salt and lime were organized. A suggestive outline of soil study by farmers' organizations or groups of farmers was prepared, 564 persons were called on, and 140 persons were advised.

Farm-management demonstrations.—This work started several months prior to the beginning of the fiscal year and was continued

during the year by the four county agents, with the assistance of the farm-management demonstrator. The county agents, farm-management demonstrator, and other agricultural workers assisted 493 farmers to study their farm business by making a summary and analysis of their farm transactions. One hundred and thirty of these farmers were assisted for the second time. A special farm-account book was prepared, but was not available for the farmers' use until near the end of the year. However, 39 farmers were sufficiently interested to keep simple farm accounts in books of their own, thus enabling them to study their farm problems to the best advantage.

OTHER EXTENSION WORK.

Poultry extension.—The poultry-extension work was carried on by means of farm visits, advice, and cooperation with county agents, instruction and demonstrations at meetings, poultry-marketing campaigns, and poultry-extension schools. The leader of this project works with the county agent in cooperation with organizations or associations formed for the purpose of developing the poultry business. During the year 33 economic-production poultry demonstrations were completed and 40 were under way at the close of the year; 10 poultry-extension schools were held, with an average attendance of 48. Educational exhibits were made in connection with five fairs and poultry shows, at which several demonstrations in killing and dressing poultry were given. The total attendance at these demonstrations was 12,102. Egg circles were formed in three communities for the purpose of purchasing supplies and marketing the products of the poultry plants cooperatively. During the summer and fall a State-wide poultry killing and marketing campaign was conducted in cooperation with county agents to show poultry keepers the increased profits secured by dressing poultry before marketing and to give instructions for properly killing and packing birds for market. More than 100 poultry houses were built in accordance with plans furnished. In carrying on this work what are called "building bees" were conducted throughout the State. Under this plan a number of persons in one community assist in remodeling or constructing an up-to-date poultry house, which stands as a model for others in the community. One hundred and twenty-eight lectures and demonstrations were given; 506 farmers were called upon and 821 advised on poultry matters. The extension division, through the leader of this project, cooperates with the State department of education by assisting teachers of agriculture in secondary schools to organize their instructional work in poultry husbandry.

Forestry extension.—Under this project the farmer was assisted in managing his woodlot so as to get the maximum annual yield

from his wooded area and in making his waste land productive by the growing of forest trees. Demonstrations were carried on in cooperation with county agents. The following demonstrations are under way: Thinning, 5; planting, 3; liberation, 1; reproduction, 1; total, 10.

Correspondence courses in agriculture and home economics.—Eight different courses aimed to direct systematic study of agriculture and home economics were offered. In conducting this work courses of study are arranged and divided into lessons, and textbooks, bulletins, and reports are recommended for reference. Fifty-one new students were registered during the year.

General lecture service.—Two hundred and sixteen lectures and demonstrations were given by the resident teaching faculty of the college of agriculture on request of the county agents and local organizations, with a total attendance of 13,426. These lectures and demonstrations are largely given in support of extension work, being conducted by county agents and specialists.

Work on funds from outside the State.—During the year \$20,000 was received by the college from sources outside the State for the support of extension work in Maine not included in the cooperative projects. With this fund demonstration work was carried on by means of county agents in six counties, and boys' and girls' club work was conducted throughout the State. One hundred and seventy-five clubs, with a membership of 1,804 were organized, representing every county. The State department of agriculture had funds for carrying on dairy-extension work, farmers' institutes, and seed-improvement work.

OUTLOOK.

In the organization of the extension work in Maine particular emphasis was placed on the demonstration and economic features, including definite follow-up work. The county-agent work is on a different basis from that which has been adopted for most States, the entire salary and expenses of the agents being assumed by the extension division. Under close supervision and with substantial assistance from the college-extension specialists, marked results have been secured. Instruction through extension schools both in agriculture and home economics has been an important feature of the work. The courses of instruction are confined to certain specific lines, and actual demonstrations and follow-up work are provided for. The instruction in poultry husbandry illustrates a practical combination of the work of the specialist with that of the county agent. At every demonstration care is taken to see that some one or more of those present actually acquire knowledge of the principles involved

and some dexterity in the performance of the operations demonstrated. This, then, assures in every community a resident demonstrator who may become a cooperator with the college in conducting demonstrations and in reporting on spread of influence. The extension division is well coordinated and administered.

MASSACHUSETTS.

Division of Extension Service, Massachusetts Agricultural College, *Amherst*.

WILLIAM D. HURD, *Director*.

Organization and administration.—The form of organization in the extension service is the same as for the year 1914–15. The growth of the work and changes in position have made necessary the addition of several instructors. During the year changes were made in the following specialists: Cooperation and marketing, animal husbandry, assistant county-agent leader, and civic improvement. The home-economics specialist was made leader of home-demonstration work for women. The State leader of boys' and girls' club work resigned June 30, 1916. Four additional offices were made available for members of the staff who have their headquarters in connection with the general office. An intercommunicating telephone was installed in the extension offices during the year. Desirable moving-picture films and apparatus were not made use of because of the stringency of the State law making it impossible to use such material in small villages. The general extension policies are determined by the cabinet of the college, composed of 12 persons. Frequent conferences are held by heads of departments, extension specialists, and the director in order to maintain a thorough acquaintance with the organization and plans which are to be carried out. During the year a joint conference was held between the State board of agriculture and the trustees of the college, at which it was agreed that the board of agriculture will confine its activities largely to administrative affairs and that the teaching and demonstration work will be delegated to the college. Harmonious relations exist between the State board of education and the agricultural college. Extension work was carried on through instructors in charge of vocational departments in high schools and other county schools of agriculture. The agricultural representative of the State board of education attends conferences and assists through the agricultural schools in taking up farm-management demonstration work. Cooperative relationships are maintained with a large number of voluntary organizations. The State Federation for Rural Progress, made up of 31 organizations, is particularly interested in developing the work of the State-supported project on community planning.

Publications.—During the year four bulletins in issues of from 1,000 to 3,000 copies each were published on insects and diseases affecting plants, fruits, and vegetables; six in issues from 1,000 to 5,000 copies each on subjects pertaining to boys' and girls' clubs; and three in issues of from 4,000 to 11,000 each on home-economics subjects. These 13 publications were paid for from Smith-Lever funds; and many of a similar nature and some covering State-supported projects were published during the year and paid for entirely from State funds. A committee on publications was created in the college composed of the directors of the extension service, the graduate school, and the experiment station, and the secretary of the college and extension editor. This committee has entire supervision over the preparation and printing of all college publications.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal-----	\$12, 930. 75
Smith-Lever, State -----	2, 930. 75
United States Department of Agriculture, farmers' cooperative demonstration work-----	14, 462. 19
United States Department of Agriculture, Bureau of Animal Industry-----	2, 013. 50
State appropriations -----	51, 652. 02
Total -----	83, 989. 21

Smith-Lever funds were used in support of the following projects: Printing, county agents, home economics, extension schools, boys' and girls' club work, demonstrations in animal husbandry, poultry husbandry, dairying, fruit growing, and farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairying, and farm management.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 8; June 30, 1916, 9; funds expended, \$15,561.18.

The work was continued as last year with the extension director in charge of county-agent work and with an assistant county-agent leader. Six of the nine counties have farm bureaus, one a county improvement league, and two agents cooperate with county agricultural schools, whose trustees assume the responsibility of county farm bureaus.

The main lines of work of the county agents organized in definite form were as follows: (1) Orchard management, including spraying, pruning, grading, and packing demonstrations; (2) alfalfa; (3) green-manuring and cover crops; (4) soy beans in silage; (5) fertilizer demonstrations; (6) liming; (7) grass renovation; (8) seed-potato selection and potato spraying; (9) poultry, including caponizing demonstrations; (10) stock judging; (11) dynamite blasting for drainage; and (12) weed control.

During the year 256 demonstrations were conducted, at which 68 meetings were held, attended by 1,469 people. Of these demonstrations 119 related to horticulture and 106 to forage crops. A State-wide spray campaign was undertaken. Many spraying demonstrations were held, and several counties arranged a regular schedule, so that a large part of each county was covered. Many of the cooperating demonstrators kept accurate data on the cost and results of spraying. In six counties the farm bureaus joined with the extension service of the college in making special fair exhibits of low and high producing grade cows belonging to members of the cow-testing associations. Successful judging contests were organized in connection with the exhibits, the purpose being to show farmers the advantage of keeping records. The boys' and girls' club work has this year probably received more attention from county agents than any other one project. An encouraging feature of this work is that agents seem to be successful in developing local leaders to supervise the work. County agents in conference with the department of economics of the college have developed a system of organization for the dairymen around local shipping points. This outline of organization was prepared and submitted to the farmers, who are themselves working on it at present. The plan provides for county federation of local units and a State federation of county units.

Home economics.—Two women devoted their entire time to State-wide home-economics extension work, and the service of one assistant was secured for the three months ended June 30, 1916. Mass meetings were held and county organizations of farm women were formed in affiliation with farm bureaus. Ten extension schools in home economics were conducted in connection with the agricultural schools and instruction was given in foods, household conveniences, sanitation, business methods in the home, and community interests. Sixteen one-hour lecture demonstrations and five two-hour food demonstrations were given at each school. In seven towns school children were present during part or all of the sessions. Syllabi were distributed to those attending the lectures and demonstrations and a questionnaire was filled out by those registered, giving information

relative to the social life, sanitation, and labor-saving appliances in the home. The questionnaires received from the extension schools of 1914-15 were returned to those who filled them out, and they were asked to note changes made in their homes due to instruction given in the schools. The reports indicate that the following changes were made in one or more homes: Addition of gasoline stoves, portable ovens, gas stoves, enamel sinks, slate sinks, soapstone sinks, electric flatirons, gas irons, gasoline irons, flush closets, linoleum on kitchen floors, high stools, spatulas, zinc-lined woodboxes on rollers, vacuum cleaners, mops and mop wringers, bathrooms, fireless cookers, steam cookers, cement steps and walks to barns, dustless dusters and mops, washing machines, electric toasters, stationary tubs, standard ironing boards, bread mixers, carpet sweepers, kitchen cabinets, wooden spoons, and measuring cups. Loan libraries of 10 or 12 volumes were taken to each school. These books were used for reference through the week and were left at the local library for 8 or more weeks. As a result, books were added to homes in 9 towns, to public libraries in 5 towns, and to a church library. In 4 towns plans for study were made and 10 study groups were formed. Plans are already under way for the employment of four women county agents.

Extension schools.—Extension schools were conducted more closely in cooperation with the county agents than before. In one county the agent took part in the instruction work; in others the agents gave assistance in making the preliminary arrangements. Ten schools were held, with an average attendance of 85. The follow-up work has not been fully developed, but such as is being done is principally in the hands of the county agents. Extension schools in community planning, a State-supported project, were held in two places. A home-economics school is usually conducted during the week the agricultural school is held. The total attendance at the agricultural and home-economics schools was 1,050.

Boys' and girls' club work.—The boys' and girls' club work was conducted by a State leader and one assistant. During a portion of the summer temporary leaders were employed for general follow-up work. Two county club leaders are aiding the State leaders in the supervision of the work in Worcester and Hampden Counties.

The State leaders are supported by the agricultural and home-economics teachers of the public schools and by county agricultural agents in a number of the counties. Moral support of the work through public commendation, addresses, written articles, publications, etc., is given by the department of education and State grange, and a number of farmers' and business organizations. The State board of instruction gives direct encouragement by furnishing \$1,000 per annum for premiums and prizes.

Nine subject-matter projects in agriculture and home economics were outlined for the year's work, and 870 club groups were organized, including a total enrollment of 48,261. Of this number, 28,162 completed all required work. Forty-four per cent of the total enrollment was also enrolled in 1915. Ten per cent of the membership was secured by paid cooperative leaders, and 25 per cent of the total results were obtained by these same leaders. The State leaders conducted 14 schools of instruction in home canning, held 86 local fairs and club festivals, and made exhibits at 1 State and 1 interstate fair. One school of instruction for leaders was held. In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 10 members, reporting 7.75 acres, producing 540.11 bushels of corn; potato, 33 members, reporting 6.06 acres, producing 917 bushels of potatoes; market garden, 95 members, reporting 6.4 acres, yielding products estimated to be worth \$4,323.49; garden and canning, 1 club, 142 members, reporting a production of 10,187 quarts; poultry, 210 members, reporting a production of 18,103 dozen eggs; pig, 164 members, reporting a production of 30,116 pounds of pork. The pig-club work was carried on in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture.

Demonstration work in animal husbandry.—The extension work in animal husbandry consisted largely of giving assistance to leaders of other projects in which some feature of animal-husbandry improvement was involved. The leader took part in six extension schools. Ten days were given to preparing material for the milk show held by the Massachusetts Dairymen's Association, January 3 to 7, 1916. Milk-record sheets and monthly record books were furnished to county agents and to 90 milk producers. There are three dairy-improvement associations in the State, similar to the regular cow-testing association. One of these, representing 418 cows, meets quarterly to discuss dairy problems. One cooperative breeding association was formed, which purchased 2 young Guernsey bulls with which to begin the work. Thirty lectures were given at various grange and other agricultural meetings.

Poultry husbandry.—Extension work in poultry improvement was conducted along four lines, namely, poultry-house construction and remodeling, white-diarrhea control, egg production, and miscellaneous meetings, such as poultry shows and farmers' institutes. The work done in prevention of white diarrhea in chicks was conducted in cooperation with the department of veterinary science of the college. The extension specialist arranged for and collected the necessary blood samples. The veterinary department carried out the laboratory work. Two days each week were spent on this work

until the last of May, at which time the entire work was turned over to the veterinary department. Thirty-eight flocks, representing 6,376 birds, were tested. In order to bring about improvement in the construction of poultry houses, 20 visits were made to successful and unsuccessful poultry raisers. Models of poultry houses illustrating good and bad construction were shown at 14 educational exhibits, and 342 blue prints for buildings, feed apparatus, etc., were sent out during the year. To bring about increased egg production, live fowls having good laying pedigrees were shown in contrast with those from low-producing strains. The attendance at the meetings at which educational demonstrations were made was 22,750. Considerable time was spent in answering inquiries concerning poultry improvement, in preparing circulars of information, and in revising a correspondence course in poultry husbandry.

Dairying.—Perhaps the phase of dairy-extension work having the most immediate effect was the exhibiting of milk, cream, and butter samples at the milk show in Boston, at the college during farmers' week, and at the Fitchburg fair. These samples were secured in cooperation with the State dairy inspectors. At the Boston dairy show there were 325 samples of milk and cream and 19 samples of butter. At the college there were over 100 milk and cream samples and 19 butter samples. A benefit that resulted from this work was to acquaint the consumer with what a farmer must do in order to produce milk to meet certain required standards. The cooperation between the leader of this project and the police power of the State has opened the way to improvement through education rather than by compulsion. Fifteen creameries were visited and recommendations made as to the overrun. Plans were also made for refrigeration and improvements in ice boxes. In scoring contests at the college from 18 to 20 samples of butter and 30 samples of milk and cream were judged and reports made to the exhibitors. During the latter part of the year the leader of this project spent much time in promoting and assisting in developing plans for the national dairy show held at Springfield in October. This project was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Demonstration work in fruit growing.—The leader of this project began work November 30, 1915. During the following 7 months he made 2 visits to each of 15 orchards planted in 1910 and 1911, and prepared a written report on them. Each orchard has been carefully pruned and dormant-period spray applied. The agents in the counties where these demonstration orchards are located gave publicity to the work by holding meetings and by taking visitors to the orchards. In at least 10 of these orchards the work is being con-

ducted on an agreement covering a period of 10 years. In the improvement of old orchards, demonstrations were made in pruning and in the application of sprays necessary to control scale and moth. Eighteen pruning demonstrations were conducted, principally in counties having agents, with an average attendance of 23. Fourteen lectures were given before county-agent conferences and fruit growers' and horticultural society meetings, with an average attendance of 106. An apple-packing school was held for one week at the college in October, 1915, at which 13 were present. All were taught to perform every step from the gathering of the apples to the grading and packing of both boxes and barrels. Much fruit was sent to the college to be identified. Most of the identifications were in charge of the leader of this project. In order to correlate the work under this project with that of the work under the county-agent project, the leader has attended six conferences where fruit growing was a part of the program of work planned for the year. He also made 101 miscellaneous farm visits. In addition, he gave lectures before 2,728 people attending extension schools.

Farm-management demonstrations.—Farm-management demonstrations are now in progress in nine counties, demonstrations in two counties having been started within the year. These demonstrations continued under the leadership of the county agents and agricultural high-school teachers with the assistance of the State farm-management demonstrator. Within the year these leaders assisted 355 farmers to summarize and analyze their business as a basis for deciding how to increase their net income. Of these farmers, 135 had been assisted once before; while 104 had been assisted twice, but wished further help in working out the best means of making their farms more profitable. One hundred and forty-three farmers expressed a desire to keep a more accurate account of their farm business and were assisted in starting a simple farm-record book. At the end of the year they were given assistance in summarizing the accounts kept and in interpreting them as a basis for modifying their plans for the following year. Thirty-nine farmers' meetings were held to present the farm-analysis idea to other farmers throughout the counties and to offer assistance to anyone who wished to study their farm business in this manner.

OTHER EXTENSION WORK.

Fair exhibits.—The last fair exhibit was centered upon dairy improvement. Besides the equipment necessary to care for milk properly, the most attractive feature was an exhibit of cows whose milk production record had been kept during the year. Each visitor to the tent in which these animals were exhibited was requested to rank

each cow as to production. On the following day the rank as determined by the year's test was publicly announced. The fact that very few persons could determine the high producers by physical characteristics established the point that the scales and the milk-record sheet were the only reliable means by which to judge a cow. Nine such exhibits were made during the year.

Community planning.—During the year work was done in cooperation with county-farm bureaus, agricultural extension instructors, county conferences on community planning, extension schools, community organizations, the Massachusetts Federation for Rural Progress, and the Massachusetts development committee. The purpose of this project is to bring into consideration all of the industrial, social, and economic features of a community to the end that each shall be considered in its relations to the others. Since the results of community planning must be brought about through a long term of years, the general plan is worked out by the leader of the project, who goes into a community and discusses in a systematic way the intimate industrial, economic, and social relations of people to each other. After a few meetings have been held, the entire plan is turned over to committees and subcommittees representing the community. In the village of Hardwick the work was begun in 1913. After three and a half years such things as the following had been accomplished: A farmers' exchange was established and did a buying and selling business of \$100,000 a year; a telephone exchange was put in to replace an old-style extra toll service; the railroad was induced to guard its crossings, especially at the time of milk delivery to the station; apple-packing demonstrations were held and the Hardwick brand of apple is now making a place in the market; home-economics courses were introduced into the public schools; a community horse shed was built; a community playground was purchased and planned; a bog was drained; and a public-health survey and general clean-up plan was entered into. The recreation committee had a program which was entered into by the granges, churches, and other associations. The transportation committee has had a representative from the highway department work out a plan for a better road. A cooperative plan for community development was entered into at Ashburnham, Sutton, Ayer, and Wilbraham. In a similar way some work was done at Savoy in the North Berkshires. In the community-planning school extension specialists in the college were invited to discuss a number of agricultural subjects in connection with those who discuss social subjects. Fifteen such schools were requested for the season of 1916-17. In the office of the leader of this project is a carefully prepared card index showing the time and extent of every phase of community-planning work attempted in the State. The follow-up work is carefully looked after

by the leader. One hundred and seventy conferences were held with an attendance of 907. Fifty-five lectures were given, at which the attendance was 2,788. Ten counties are now working on community-planning projects, and 26 communities are continuing the community-planning work of last year and a total of 8 communities began the work during the past year.

Correspondence courses.—A few of the 18 courses offered last year were revised. No effort was made to increase the registrations in the various courses because of the lack of funds and sufficient clerical help to take care of those already enrolled. The group-study idea was further developed. Ten groups, with a total membership of 93, worked in 10 different communities. The active enrollment of the year was 909.

Lectures and lecture courses.—An attempt was made to furnish lecturers and to plan lecture courses for granges, farmers' clubs, etc., several months to a year in advance, in order to have these organizations plan their programs along definite lines. This plan was also entered upon to lessen the number of miscellaneous calls on short notice and to make more complete arrangements with the county agents for the use of speakers and demonstrators in their seasonal plans. As a result, more of the extension instructors were able to continue their work on succeeding days in different parts of the same county, which resulted in the better use of time, energy, and money than on the single-trip plan. For the formal lecture the communities usually bear the traveling expenses. For trips made to visit some piece of work in progress or to organize new work, the college defrays the expense.

Library-extension work.—Under this project, books, bulletins, and pamphlets are sent to libraries making request for their use. During the year 39 libraries were supplied with 679 volumes and 49 bulletins and pamphlets.

Civic improvement.—Civic improvement, as the name implies, has to do with the physical development of public tracts of land in towns and villages, such as the designing, grading, and planting of school grounds, town parks, or other public reservations; grading and constructing and planting of trees within the town, the country road, and roadside; the redesigning and planting of cemeteries, railway-station grounds, and trolley waiting stations. Two particular lines of work were emphasized in the past nine months: (1) Visits and general surveys of smaller towns, followed by reports and recommendations for different projects; and (2) assistance to public institutions, hospitals, asylums, county agricultural schools, and the like, in laying out and grading roads and walks, location of buildings, etc. Thirty-three towns were visited and given definite reports and plans.

OUTLOOK.

In the organization of work the various State societies and boards were enlisted in a plan for cooperation designed to make harmonious relationships and united action. The county-agent work has been definitely recognized as the project around which all extension activities center; strong county organizations are supporting the work of the agents; definite written projects have been adopted; follow-up work is provided for, and the local communities are giving generous response. The home-economics instruction has been of a definite type securing results. The wide range of improvements reported made in homes as a direct result of this instruction shows the possibility of actually reaching the home in an effective manner. The method of securing information as to the results of teaching is worthy of mention. Boys' and girls' club work has received the active support of the county agents, agricultural high school, State department of education, business men, and individuals. The relatively large percentage of the membership continued from the previous year certifies to the interest in the work and the efficiency of the leadership. The demonstration orchards, which were planted and are being cared for by the owners under college supervision, furnish excellent demonstration material for use by county agents and extension specialists. The orchards are becoming centers for the dissemination of horticultural information in the county, the owners taking a special pride in seeing that their neighbors profit by the help they have received.

The community-planning project has been in effect for more than three years. The results are most pronounced in the village of Hardwick. Most features of extension teaching depend for their success upon effective local community organizations. The work already accomplished will serve as a demonstration of the possibilities under trained leadership, and be a stimulus to other communities to organize their forces and secure united action for needed public improvements.

MICHIGAN.

Division of Extension, Michigan Agricultural College, *East Lansing*.

R. J. BALDWIN, *Director*.

Organization and administration.—The form of organization was the same as in 1914-15. The total number of persons, including county agents, giving full time to extension work was 40, 35 of whom were men and 5 were women. In order to develop the work in the upper peninsular more effectively, extension headquarters was established at Marquette and a man was placed there in charge. He reports to the extension director the same as other workers. He has

immediate charge of the details of county organization and the work of the specialist in this part of the State. The entire time of 16 persons was given to administration and instruction from the central office. An advisory council was appointed composed of the president of the college and the dean of agriculture, with whom the extension director may consult on matters of policy and administration. However, it is the plan to represent each department by an extension specialist who will office with the subject-matter department.

Publications.—Five bulletins, ranging from 4 to 36 pages each, were published for use in extension work in editions of from 10,000 to 40,000. Seven bulletins, ranging from 8 to 56 pages each, were published for the use of boys' and girls' junior extension work in editions of 10,000 to 20,000.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal_____	\$28, 032. 37
Smith-Lever, State_____	18, 032. 37
United States Department of Agriculture, Farmers' cooperative demonstration work_____	14, 999. 03
United States Department of Agriculture, Bureau of Animal Industry_____	1, 350. 00
College _____	19, 433. 96
County _____	1, 366. 45
Total_____	83, 214. 18

A State law provides that one-fifth of a mill on all the taxable property in the State shall go to the support of the agricultural college. The trustees appropriate from this money for extension work.

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, extension schools, boys' and girls' junior extension work, live stock, farm-crop demonstrations, potatoes and vegetables, horticulture, control of insect pests, farm-management demonstrations, extension work in upper peninsula, and household engineering. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' junior extension work, farm-management demonstrations, a special project on extension work in home economics in St. Joseph County.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 13; June 30, 1916, 23; funds expended, \$35,673.17.

The work was organized with a county-agent leader in charge. In March an assistant county-agent leader was appointed. Since the inauguration of the work the support of various organizations of the State were solicited. During the past year considerable progress was made in the development of county organizations of the farm-bureau type to support the county agent in his work.

The main lines of work of the county agents organized in definite form were as follows: (1) Orchard management; (2) liming, including the development of marl deposits; (3) drainage; (4) cover crops; (5) introduction of pure-bred sires; (6) feeding and care of cattle; (7) potato-seed selection and standardization of varieties; (8) legumes, including alfalfa, clover, sweet clover, vetch, and soy beans; (9) beans; and (10) plant and animal diseases. Two thousand three hundred and seventy-seven demonstrations were conducted, at which 1,253 meetings were held, attended by 14,946 people. The most important demonstrations were those relating to horticulture, dairying, cereals, forage crops, control of plant and animal diseases, and soil improvement. Lime and marl demonstrations were widely distributed in most of the counties and increased yields of alfalfa from 50 to 75 per cent resulted. Seventy marl beds were developed locally to supply local demands and several times that number were located for future development. In 24 of the 26 counties having agents, potato growing is on a commercial scale. Through the influence of the agent, the growers are organizing to standardize high-yielding strains of a few of the market varieties and to produce potatoes of a better quality. As an outcome of the potato-association work, one county in 1915 sold 800 bushels of seed at 60 cents per bushel above the market price. Last year orders amounting to 6,000 bushels were received for the same variety. As a result of orchard demonstrations in pruning, spraying, thinning, and packing, marked improvement was shown both in better quality of fruit and in better methods of grading, packing, and selling. Twelve cow-testing associations were formed during the year and one reorganized. Fifteen community breeders' associations were formed. Concerted action is being taken in practically every county having an agent for the elimination of scrub sires and the substitution of registered ones.

Home economics.—The principal feature of extension work in home economics was the extension-school work devoted to women's interests. Growth is shown by the fact that in 1914-15, 12 such schools were conducted, and in 1915-16 this number was increased to 31. Six of the 31 schools were in places where the work had been presented the previous year. It was found that during the first year the enrollment was two-thirds town people and one-third country people, but when the school was held in the same place the second

year the enrollment was almost entirely of country women. These schools continued for five days. In order to obtain a school the local women were requested to send in a petition with 30 signatures. Whenever possible the week following the extension school was given over to follow-up work.

One phase of the service which seems to promise good results is the organization of rural home-study clubs. These clubs, which hold monthly meetings, have about 50 members each. There was cooperation with rural churches, granges, farmers' clubs, and other organizations. Some judging was done at the fairs, and an effort made to have this work strongly educational. All judging was handled by means of score cards, which were fully explained to the people after the awards were placed. The women of the upper peninsula made a special petition signed by 1,000 to have a woman worker located there. Their request was granted, and during the latter part of the year one of the two women working on this project spent her entire time in this section of the State. An effort was made in the upper peninsula to organize the young women for work in which they made use of some natural products for the market. Wild red raspberries grow there in great profusion. These raspberries when canned or preserved make a most delicious food, and young women are turning knowledge of this fact into profit.

Extension schools.—During the year 40 agricultural extension schools and 30 home-economics extension schools were held. Most of these schools begin Monday at noon and continue until Friday night. However, a few continue only during three days. Two men were assigned as instructors to the agricultural school. One woman instructor, assisted by a senior student from the college, was sent to the home-economics school. These schools are usually held in the same town at the same time. The season for this work is during the months of January and February. Systematic courses were offered in the following subjects: Farm crops, live stock, horticulture, farm and household engineering, soils, farm management, insect pests, dairy husbandry, animal husbandry, home economics (first year), and home economics (second year). No more than three courses were offered in a single school. In a county having an agent the schools were arranged for by him. In such cases the county agent assisted in the instructional work. However, most of his efforts were directed toward stimulating attendance, perfecting the organization of the school, and arranging for follow-up work. These schools were secured by filing a formal application containing 30 signatures. The names were usually those who were members of a farmers' club, a grange, or a village or rural church. The schools were for the most part held in country places. Where no agent was located college specialists looked after the follow-up work as best their time and

other duties would permit. The total enrollment for the agricultural-extension schools was 2,051; the total number of lectures and demonstrations, 711. The total enrollment for home-economics extension schools was 1,561; the number of lectures and demonstrations held was 281.

Boys' and girls' club work.—The club work made rapid strides during the year. In addition to the State leader, who had charge of the work in 1915, three permanent assistants were added during the year and eight temporary assistants. The work is carried on in direct cooperation with the county agricultural agents, county superintendents of schools, rural schools, department of education, all of whom give indorsement, and in many instances definite leadership to the work through the follow-up season. This is especially true with the county agricultural agents, who take charge of the boys' and girls' club work in their counties and consider it one of their projects. Most of the organization work is intrusted to the county superintendents of schools, but the subject-matter instruction and general follow-up work during the summer is, as a rule, taken care of by the county agents where such agents are employed.

By means of seven subject-matter projects in agriculture and home economics the boys' and girls' club work was outlined. Five hundred and thirty club groups worked with these projects during the year. The total enrollment in all projects was 5,447, out of which number 2,835 actually began the work and did a considerable portion of the work required during the year; 1,125 boys and girls made complete reports properly attested at the close of the year. The total value of all products raised by the boys and girls during the year was \$17,924.75. About 40 per cent of the total enrollment was enrolled in 1915. Thirty per cent of the total enrollment was secured by paid cooperative leaders, while 65 per cent of the total results, reports, etc., were secured by these same leaders. The State leaders conducted 134 canning demonstrations for instruction of members during the year, held 48 local club fairs and festivals, 25 field demonstrations, 17 district training schools for local leaders, made exhibits of club products at 230 different places as local fairs, and made exhibits at 16 county fairs. The State leaders from the college of agriculture furnished 30,496 pieces of follow-up instruction by way of circulars, typewritten and mimeographed material, etc.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 120 clubs, 117 members, reporting 89 acres, producing 4,177 bushels of corn; potato, 64 clubs, 180 members, reporting 80.66 acres, producing 6,788 bushels of potatoes; garden, 30 clubs, 399 members, reporting 112,890 square rods, yielding products estimated to be worth \$2,964.33; garden and canning, 12 clubs, 134 mem-

bers, reporting canned food estimated to be worth \$1,008.78; poultry, 17 members, reporting products estimated to be worth \$217.61; sewing, 35 clubs, 217 members, reporting 947 articles; bean, 22 clubs, 61 members, reporting products estimated to be worth \$4,505.53.

Live stock.—Work under this project consists largely in forming cooperative breeders' associations and cooperative cow-testing associations in regions requesting aid and where conditions seem suited to the development of such organizations; to advise with individuals when requested; to give instruction in extension schools; and to encourage the formation of district and county breeding associations. On June 30, 1916, there were 33 cooperative breeders' associations and 23 district or county breeders' associations. Since the average herd in this State contains about six cows each farmer could not afford to keep a pure-bred sire. Therefore a breeding association including 120 or more cows is formed and 3 pure-bred sires are purchased. After two years these sires are exchanged. Twenty-five such associations have been organized in the upper peninsula. Since the farmers have taught themselves to work cooperatively in these breeding associations its advantages have extended to the purchasing of feeds and the sale of products. Since March 1, 1916, the work has consisted in giving aid to cow-testing associations already in operation in the State. Six cow-testing associations were organized during the year, representing 250 herds, having a total of 3,529 cows.

Farm crops.—The increased demands made for extension work in farm crops made necessary the addition of one specialist. The old membership of the Michigan Experiment Association continued its cooperative crop tests and pedigreed seed work. Four thousand five hundred and seventy-three bushels of improved oats were distributed to 475 farmers, 104 bushels of spring barley were distributed to 13 persons, 1,279 bushels of improved wheat were distributed to 84 farmers, and 549 bushels of improved rye to 67 farmers. These figures do not include orders for thousands of bushels received and filled direct by the grower. The leader of this project participated in 20 extension schools, 75 public meetings having an attendance of 4,424, 24 demonstrations having an attendance of 389, and visited 505 farms.

Potatoes and vegetables.—During the winter season the leader confined his work to conferences with greenhouse men in vegetable growing. His field work with vegetables was principally in connection with potatoes and was usually arranged for through the county agents. Special effort was made to standardize the varieties, and the treatment of seed to prevent diseases was continued on the same plans as in 1914-15. Near-by growers were invited to be present at meetings when the specialist inspected the potatoes. In this way growers were informed as to the method of seed improvement. Emphasis

was placed at these meetings on identification of diseases and methods of control, together with hill selection of potatoes for seed purposes. Some work was done at fairs in the judging of vegetables and potatoes. During the year 64 meetings were held, with an attendance of 3,326, and 254 personal visits and inspections were made.

Horticulture.—Fifty-one pruning demonstrations were conducted, with 658 people in attendance. One hundred and two farm visits were made, and 17 lectures were given to small groups and associations, with a total attendance of 1,085. Work is conducted through the county agent and through organizations rather than with individuals. The meetings have been held in the counties of the fruit belt having county agents or in sections where there already exist horticultural societies. The agent selects the farm or community where the meeting and demonstration is to be held, and the specialist directs and conducts the demonstration. Associations have been organized to pack and handle the fruit; such fruit brings from 10 to 25 cents a bushel above that handled by individuals.

Control of insect pests.—Attention was given to the control and prevention of insects which injure stored grain in elevators and in farmers' granaries, the bean weevil, and the cutworm. Demonstrations were made in control methods through the use of poisoned mixtures, tillage, and methods of cultivation. Most of the work was confined to the southern half of the lower peninsula. Visits were made to 123 farms and homes, and demonstrations were made in about half of them. Much of the work was conducted through arrangements made by the county agents. Sixteen lectures were given at various extension schools, having an average attendance of 29. Lectures were also given before granges and meetings of farmers' clubs. An exhibit of insect pests was made at the State and county fairs. The nature of their work, the time of their appearance, and control measures were explained to visitors.

Farm-management demonstrations.—Demonstrations were started in two new counties, which, with the five demonstrations begun last year, makes seven counties in which demonstrations are in progress. In 1 county 16 farmers cooperated in the work for 3 years, in 4 counties 164 farmers cooperated for 2 years, while within the past year 336 farmers cooperated for the first time. Sufficient interest was aroused as a result of the demonstrations in these 7 counties so that 511 farmers wished to keep accurate records of their transactions. They were assisted in starting a simple account book which can be easily summarized at the end of the year. This interest in account books extended into other sections of the State, and in 9 counties in which there were no regularly employed county agents there were 334 farmers who were furnished with account books so that they might study their farm business in this same manner. In

some of these counties there were local leaders, such as grange workers and teachers in high schools, who took an active interest in helping the farmers in this line of study.

Extension work in upper peninsula.—Work was conducted principally along the line of the development of live stock. This feature of the work has been referred to under the heading of "Live stock" (p. 254). Demonstrations in the growing of crops were made at five different points. One month was spent in the pure-seed demonstration work. The object of this form of extension work was to show farmers how to clean seed and make it possible for all farmers to sow well-cleaned seed. Reports show that from 10 to 26 more bushels per acre were secured than from seed that was not cleaned. Among the potato growers 50 per cent are attempting to standardize the varieties, and at many shipping points not more than three varieties of potatoes are grown. Three counties organized farm bureaus during the year. Seventy-five meetings were held, at which attendance ranged from 8 to 300.

Household engineering.—The introduction of water supply into the home, the arrangement of septic tanks, and the installing of heating and lighting plants were the principal features of this work. Forty farmers have installed water systems and constructed septic tanks. Supervision is given to the work in a community in one or two places that these places may become centers for demonstration work. Three hundred and eighty-four stock and special plans were furnished during the year. When a farm home is visited various other matters receive attention, such as the arrangement of doors and other conveniences within the home. Four lectures were given at 18 extension schools. In all, 30 demonstrations were held, 48 meetings, having an attendance of 1,552, were addressed, and 101 farms visited.

OTHER EXTENSION WORK.

The marketing of farm products.—Associations for marketing fruit were organized and assistance was given other fruit-marketing associations. As an outcome of potato-association work, two agents report the sale of 300 bushels and 400 bushels, respectively, to be used for seed, to the members of a farm bureau in another county in Michigan. One of these counties also sold three carloads of potatoes for seed in Ohio, Indiana, and Illinois, the sales being made through the farm bureaus in those States. Agents have also given assistance to live-stock-purchasing associations, of which a large number have been formed in Michigan in recent years. Agents have assisted farmers in conducting the sale of registered stock in one county, in another county the sale of a carload of dairy cattle,

and in a third county the purchasing of four carloads of cattle for grazing. Assistance has also been given in adjusting difficulties between farmers and millers regarding the price of wheat, resulting in the adoption of a cooperative plan satisfactory to all parties.

Farmers' institutes.—During the fiscal year of 1915-16, 588 farmers' institutes were held, attended by 179,200 people. The following subjects received special attention: Soil improvement, seed selection, growing of alfalfa and other leguminous crops, dairying, fruit culture, poultry raising, and stock feeding. In particular sections such subjects as potatoes, sugar beets, and beans were given a prominent place on the program. An effort was made to arrange the topics so that they bore so close a relationship to each other that they virtually constituted one general topic. During the evening sessions attention was given to topics relating to the home and home grounds, sanitation, community building, rural education, and the work of the agricultural college. In some instances the county commissioner of schools or teachers of agriculture in the high schools were represented on the program. No special sessions were held for women. No registration of attendance was kept, other than the membership list. The money for local expenses was raised principally through the membership fee of 25 cents. After the one-day institutes were held in the county, a county round-up institute lasting two or three days was held.

OUTLOOK.

County-agent work has made marked growth during the year. With the development of county organizations in support of the work and the adoption of definite written projects, extension activities are more and more centering with the county agents and their supporting county organizations. Through the organization of rural home-study clubs there seems to have been developed in home-economics lines an efficient and continuous means of self-help. The interest shown in club work and the success which has been attained promises well for the future of extension work in the State. Live stock, fruit, potatoes, and beans are large agricultural interests. Extension work in these lines has assumed practical concrete form. Through vigorous campaigns and follow-up work by the specialists and county agents and the active cooperation of various associations of the State results in terms of better farming and better living are to be expected. The whole extension program seems to be working out most satisfactorily.

MINNESOTA.

Agricultural Extension Division, College of Agriculture, University of Minnesota, University Farm, St. Paul.

A. D. WILSON, *Director.*

Organization and administration.—The plan of organization and administration continued as last year, the extension division being a section of the college of agriculture of the university. The extension director, who is also superintendent of farmers' institutes, was aided by the county-agent leader and his assistant, who at the end of the year had supervision of 18 county agents working in as many counties; the club leader, with 2 assistants; the leader of home-economics demonstrations, with 3 assistants; 2 farm-management demonstrators; 2 specialists in charge of demonstration-farm work; an editor of publications, and 10 extension specialists in various agricultural lines. A project dealing with farmers' clubs and farmers' cooperative organizations was in charge of the director, and an extension-school project was in charge of the specialist in horticulture.

Publications.—Two types of publications were issued, the farm-library series, sent to the entire mailing list of 50,000 names, and the special series, sent to persons likely to be interested in the particular subject presented by the individual publication. No publications were issued on Smith-Lever funds.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$24, 898. 99
Smith-Lever, State	14, 898. 99
United States Department of Agriculture, farmers' cooperative demonstration work	12, 591. 57
United States Department of Agriculture, Bureau of Animal Industry	1, 858. 00
State appropriations	26, 392. 58
College	28, 725. 82
County	16, 364. 49
Other sources within the State	7, 279. 78
Total	133, 010. 22

Smith-Lever funds were used in support of the following projects: County agents, home economics, extension schools, boys' and girls' club work, farm-management demonstrations, and demonstration farms. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairying, dairy manufacturing, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 24; June 30, 1916, 17, funds expended, \$54,575.08

The work was under the supervision of a State county-agent leader in charge of all county-agent work. It is planned to have an assistant county-agent leader begin work in September, 1916, whose duty will be largely to assist in the organization of the county-agent work. Almost all of the counties in Minnesota have some form of organization, although a number of these are doing little to assist the county-agent work.

Most of the county-agent work in Minnesota was organized along project lines, the following being important projects: (1) Alfalfa and liming; (2) potato-disease control; (3) potato improvement; (4) orchard management; (5) farm-management demonstrations; (6) purchasing and marketing associations, including live-stock shipping associations and milk-producing associations; (7) boys' and girls' club work; (8) live-stock improvement, including the introduction of pure-bred sires, better milk cows, some pure bred, but mostly grades, cow-testing associations, live-stock disease control, including hog cholera and abortion; (9) farm-bureau organization, and (10) farm engineering, including drainage and farm building.

During the year 1916, 876 demonstrations were conducted; 133 meetings were held at demonstrations, with a total attendance of 5,292. The important lines of demonstration work were cereal crops, forage crops, horticulture, control of plant diseases, soil improvement, boys' and girls' club work, rural engineering, live-stock diseases, and dairying. One of the most striking developments during the year was the organization of the milk producers in the four counties, Hennepin, Ramsey, Dakota, and Washington, surrounding St. Paul and Minneapolis. This organization includes about 95 per cent of the milk producers in these counties. The advanced price of milk from \$1.60 per hundred to \$2 per hundred for the winter months will make a difference of about \$10,000 per month in the profits to the milk producers in each county. In Renville County the county-agent work was supported by the swine-breeders' association, with a membership of 789 farmers. A system of reporting on hog-cholera outbreaks was organized whereby the hog-cholera outbreaks were quickly checked, so that the loss from hog cholera during the year was very slight compared with what it had been during previous years.

Home economics.—The work consisted chiefly of lectures, giving special attention to food, kitchen arrangement, care of the sick, and child welfare. Through club meetings 6,151 women were reached; through extension schools, 14,187; through institutes, 7,022; and through other public meetings, 9,466, making a total of 36,826.

Extension schools.—Twenty-eight five-day extension schools were held. These schools are arranged for on petition of 75 men and 40 women for the first of a series of two schools; for a school the following year, the petition must have not less than 100 signatures by men and 50 by women. Usually the schools provide a membership fee to pay local expenses, though in a considerable number of cases the money for local expenses was provided by voluntary subscriptions. Where the schools are large they are divided into two sections, separate courses being arranged for women. Illustrative material was provided by the extension division.

Boys' and girls' club work.—Club work was supervised by the State and assistant State leaders for the year 1916.

The cooperation within the State is unique in that the department of education, through the public-school machinery, is assisting in organizing, giving instruction, holding field and club meetings, looking after club programs, and in other ways promoting club work. No effort was made to give academic credit for the work. In addition, the county agricultural agents gave helpful support to the work in a number of the counties of the State. The membership is organized into club groups with volunteer leaders in charge. Regular meetings are held and members of each group carry on a uniform project during the year, such as growing corn, canning vegetables, sewing garments, raising pure-bred pigs, and growing potatoes and vegetables. The State leader had a definite system of follow-up instruction, consisting of circulars, letters, etc., field meetings, personal visits, demonstrations in each project, and instruction schools for the training of leaders. Ninety-five per cent of the total enrollment was under public-school leadership, chiefly agricultural and home-economics teachers who remained in the communities for the entire year and devoted full time to club leadership during the entire vacation period. Six club projects, having a total of 819 clubs, were under way in the State. Volunteer workers under the direction of agricultural and home-economics instructors located in the community, or directed by county agents and school superintendents were selected for each club. The total enrollment in all projects was 11,070; 8,886 of these carried on the work, and 3,966 made complete reports, exhibited their products, and met all requirements of the State leader. Fifty-six per cent of the total enrollment consisted of old members; 98.4 per cent was secured by agricultural and home-economics teachers, county superintendents, and county agents. The

two-club leaders conducted 184 demonstrations, attended by club members and 5,460 visitors, including parents and children not club members.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 132 clubs, 694 members, reporting 1,388 acres, producing 99,384 bushels of corn; potato, 75 clubs, 432 members, reporting 172 acres, producing 46,440 bushels; garden and canning, 180 clubs, 912 members, reporting 22.8 acres, producing products estimated to be worth \$10,570 and 9,400 quarts of canned goods; pig, 96 clubs, 393 members, reporting a production of 85,046 pounds of pork; bread, 135 clubs, 1,535 members, reporting 91,750 loaves of bread.

Farm-management demonstrations.—Work continued during the year under the supervision of the two farm-management demonstrators who cooperated with the county agents, assisting them to conduct demonstrations in their counties. During the year demonstrations were in progress in 12 counties. In these counties 602 farmers were assisted to study their farm business by making a summary and analysis of it as a basis for making changes in the plan of organization or administration for succeeding years. Under the supervision of the county agents, 552 farmers made plans to start simple farm accounts so that they might have more accurate figures upon which to base their plans in the future. In addition to these, 30 agricultural high-school teachers placed 382 farm-account books among interested farmers in their communities. With a large number of books placed by county agents in counties in which no demonstration had been conducted, there are probably nearly 2,000 farmers in the State who are studying their business by keeping a record of their farm transactions in this manner.

Demonstration farms.—Twenty-four demonstration farms are operated by their owners under a signed contract with the extension division that they will follow instructions given by the leaders of this project. Two men were employed full time in the supervision of this work, which has been under way for five years. Each farm has been improved, its plan of operation organized, the live stock standardized, and a system of records and accounts put into operation. The results obtained on these farms are used to teach profitable methods to the farmers in the community. Fifteen demonstration meetings were held during the year 1915-16.

OTHER EXTENSION WORK.

Poultry husbandry.—Work was confined to three lines: (1) The saving of losses in handling eggs, (2) lectures at poultry schools and short courses, and (3) the improvement of poultry stock and build-

ings. The specialist is endeavoring to assist in reducing the loss by breakage in the handling of eggs. It appears that in many places there is 10 per cent loss due to improper handling. The lecture work at schools and at short courses was followed or accompanied by poultry exhibitions, for which the State provides \$400 for each county engaged in this work. During the past fiscal year \$11,200 were used for prizes at these exhibitions. In the improvement of poultry stock and buildings people are informed where breeding stock can be secured. Various breeders were induced to furnish eggs for prizes in boys' and girls' club work. Blue-print plans of poultry houses were prepared and 50 houses were built in one community according to plans furnished. An interesting development of poultry husbandry has taken place in this district in the last eight years. In 1907 the community shipped out seven cases, worth \$50, and in 1908 the local creamery began handling the eggs. In 1915 the same community shipped out 62,000 dozen eggs, the farmers receiving 10 cents per dozen more for these than farmers ordinarily received. About 250 farmers cooperated in this work, receiving much stimulus from local business men.

Dairying.—During the year 1915–16, 12 cow-testing associations were organized, and assistance given to 10 other associations already in operation. These 22 associations have a membership of 689 farmers, having 8,100 cows under test. Assistance was given 167 farmers, using 14 different makes of cream separators in reducing the amount of milk fat lost in skim milk. Assistance was given in organizing 1 State-wide dairy-cattle breeders' association and 10 local associations. Five judging demonstrations were given; 94 local and 3 State meetings were addressed; cattle judging done at 11 fairs, and one week spent at the State fair in conducting a cow testing and breeders' association exhibit. This work was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Dairy manufacturing.—Cream-grading demonstration and community development work was continued in one community until November 5, when the creamery was destroyed by fire and the work was terminated. At this creamery two grades of butter were made and marketed separately; the percentage of first-grade cream was increased from 21.8 for the first month of work (November, 1913) to 78.1 during the year 1915. During the first 10 months of the year 1915 (including 4 months of the fiscal year 1915–16) the creamery paid the farmers \$3,450.35 more than they would have received had they been paid on the price basis used when work began. A considerable number of pure-bred and high-grade dairy stock was introduced, records of production were kept, a great number of silos built,

many farmers put up ice for cooling cream during the summer, cows were given better care, and there was a general improvement in all phases of dairy farming. This work is conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Farmers' institutes.—The director of extension is superintendent of institutes under the farmers' institute board, which is made up of members of the board of regents of the university, representatives from three agricultural schools in the State, and various State agricultural associations. A minimum number of regular or general institutes are held, but an attempt is made to hold a number of special institutes chiefly in connection with farmers' club meetings. During the year 75 regular institutes were held, including 202 sessions, with an attendance of 31,431, and 433 special institutes were held, with an attendance of 39,135.

OUTLOOK.

The county-agent work, while showing a decrease in the number of counties employing agents, has made progress in organization methods and work. It is probable that the work was prematurely started in some counties before the people fully understood their local responsibility in the matter. The assistant county-agent leader to be employed will be specially responsible for the proper organization of a county before an agent is employed. Placing the work of the agents on a definite project basis will serve to limit the activities of the agents to a few carefully selected lines designed to meet the needs of the county. The work in home economics was so planned that a large number of farm women were effectively reached and instructed. In the boys' and girls' club work a plan of cooperation has been developed which brings the public schools, county agents, and agricultural organizations together in effective support of the work. The arrangements made by which agricultural and home-economics teachers were secured for supervisory work during the summer vacation was most productive of results. The agricultural high school has been developed in the State until now 150 are in successful operation. The teachers of agriculture and home economics in these schools have rendered valuable aid to the extension workers not only in club work but in farm-management demonstrations and other lines. The demonstration-farm feature has shown the value of expert advice in farm management. The farms under control were carefully selected and have been administered strictly according to instructions, the farmer himself meeting all the actual farm expenses. These farms and the detailed records of their operation furnish valuable demonstrations of what may be accomplished in farming under proper methods.

MISSOURI.

Division of Agricultural Extension, College of Agriculture, University of Missouri, Columbia.

A. J. MEYER, *Secretary of Extension.*

Organization and administration.—Organization of extension for the fiscal year ended June 30, 1916, continued as for the previous year. During the year there were 18 appointments and 13 resignations, including the resignation of the county-agent leader on March 11. (The appointment of his successor took place September 1, 1916.)

The State club leader is closely cooperating with the State school system and the superintendent of public instruction, but no formal memorandum of understanding for cooperative work exists between the extension division and any other State institution.

Publications.—During the year there were issued eight extension circulars and six project announcements.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$33, 034. 17
Smith-Lever, State	23, 034. 17
United States Department of Agriculture, farmers' co- operative demonstration work	10, 231. 28
United States Department of Agriculture, Bureau of Animal Industry	100. 00
State appropriations	9, 747. 02
County	20, 230. 10
Total	96, 376. 74

Smith-Lever funds were used in support of the following projects: County agents, extension schools, boys' and girls' club work, dairying, hog-cholera eradication, horticultural demonstrations, field-insect control, demonstrations on farms, demonstrations through community clubs, and farm buildings. Funds from the United States Department of Agriculture were used in the support of county-agent projects.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 15; June 30, 1916, 14; funds expended, \$44,105.73.

The county-agent work was under the direct charge of the extension director after the resignation of the State county-agent leader March 11, 1916. Little attention was given to the building up of

membership in county farm bureaus, and as a result reports show an average decrease during the year of 80 members per county. In a number of the counties the agents are organizing farmers' clubs, live-stock-breeders' associations, hog-cholera-control clubs, etc., through which they work.

The main lines of county-agent work were as follows: (1) Hog-cholera control; (2) soy-bean introduction; (3) corn improvement, including improved varieties and seed selection; (4) orchard management; (5) boys' and girls' club work; (6) alfalfa; (7) Hessian-fly control; and (8) sweet-clover introduction. Nearly every agent had one or more written projects. Special attention was given by the agents to boys' and girls' club work.

During the year 1,170 definite demonstrations were conducted, at which 675 meetings, attended by 11,998 people, were held. More than one-half of these demonstrations related to live stock. Horticulture, forage crops, and soil improvement were also important lines of work. General assistance was rendered by college specialists, particularly along the line of hog-cholera control, horticultural work, and home-economics demonstrations. Considerable assistance was also rendered by the Office of Public Roads and Rural Engineering of the United States Department of Agriculture in connection with drainage and soil-erosion problems. Stock-feeding demonstrations were conducted in Buchanan County, which were visited by at least 90 per cent of the farmers of the county.

Many hogs are fed in Missouri annually and the losses from hog cholera are great. Special effort was made by county agents to organize farmers for the control of this disease. In St. Charles County a three weeks' campaign was conducted by the county agent, assisted by a hog-cholera specialist from the college, 27 meetings being held, with an attendance of 1,130. Seventeen clubs, each consisting of 10 or more farmers whose farms adjoin, were organized for the purpose of reporting outbreaks and to assist in the control of the disease. A study was made of 374 farms to ascertain the losses in 1915 from hog cholera. One hundred and sixty-nine herds had had cholera, with a loss of 2,413 hogs, having an estimated value of \$18,211. So thoroughly was the work done in 1916 that but three outbreaks occurred. Six herds were included in the first outbreak and two each in the second and third. These hogs were promptly vaccinated and the loss was slight.

Extension schools.—Thirty-five agricultural extension schools were held in 20 different counties, with an average attendance of 55, and 36 extension schools in home economics were held. In the agricultural schools there were two instructors, one dealing with farm crops and soils and the other with animal husbandry. The home-economics schools were generally two or three days in length, though a few

summer schools were continued through five days. As a feature of follow-up work in the home-economics schools 110 home-makers' clubs were organized. These clubs are furnished suggestions as to programs and reference readings.

Boys' and girls' club work.—Work with the boys and girls was carried on by State and Smith-Lever funds, one State leader and two assistants being in charge of the work. Cooperative relations were maintained with the county agents, superintendents of schools, farmers' associations, and business men.

Six subject-matter projects were outlined and offered to the boys and girls of the State. Four hundred and sixteen club groups were organized, containing a total membership of 6,081. The total value of the products of all of the clubs was \$6,469.39. Twenty per cent of the enrollment were also members in 1915. Local volunteer leaders such as county superintendents, teachers, and interested citizens of the community assisted the State leaders in securing enrollment and in the follow-up work.

The three State leaders conducted 38 canning demonstrations, held 344 field meetings, conducted 163 district club fairs and festivals, 160 local fairs, 3 county fairs, and visited 42 club plats and members during the year.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 45 members, reporting 45 acres, producing 1,766 bushels of corn; poultry, 450 members, reporting a production of 10,212 chicks; pig, 15 members, reporting a production of 6,064 pounds of pork; sewing, 46 clubs, 120 members, reporting a production of 621 articles.

Dairying.—Under this project attention was given to various forms of dairy management, including the use of balanced rations, management of the herd, herd records, conservation of barnyard manures, the economy of handling and marketing dairy products, and putting the dairy farm on a business basis.

Ten dairy demonstrations are now under way in as many different counties. Seven dairy-improvement associations were assisted in securing pure-bred bulls. Assistance was given one cow-testing association, and in preliminary work toward the organization of another. During the present fiscal year the dairy specialist attended 19 extension schools and 78 dairy meetings, conducted 2 demonstrations on farms, and visited 68 dairy farms.

Hog-cholera eradication.—Campaigns were conducted in four counties for hog-cholera eradication. During the fiscal year ended June 30, 1916, 3 extension schools were conducted under this project, 118 farmers' meetings held, 828 farm visits made, and 15 articles written for the press by the 3 specialists employed.

Horticulture.—One of the purposes of this project was to develop the commercial-orchard industry in sections of the State where orcharding may properly be made a leading consideration. The farm orchard was also given a large amount of attention, in order to show the possibilities of a small orchard on a general farm as a profitable side line.

Field-insect control.—Attention was given to the entire range of insect control, including work with the house fly, mosquito, striped cucumber beetle, strawberry leaf-roller, plant louse, live-stock and poultry parasites, chinch bug, San Jose scale, and Hessian fly. The major portion of work was done, however, with the three last-named insect pests, and more particularly with the San Jose scale and Hessian fly.

This work included during the fiscal year 20 extension schools, 208 farmers' meetings, 303 farm visits, and securing of 291 cooperators.

In 21 farm orchards sprayed for San Jose scale, supplemented in most cases by proper pruning and summer sprays, a total net profit of \$2,980 was shown this year upon trees included in the demonstrations which heretofore had practically no commercial value.

Practical demonstrations on farms.—The chief work done under this project was conducted by a specialist from the farm-crops department, who secured over 400 cooperators in demonstration work. In pure-seed work 82 farmers cooperated in growing seed corn, 32 in growing soy beans, and 4 in growing oats. In variety tests 69 co-operators were secured, each of whom planted 2 acres with eight varieties of soy beans, one-half of which were inoculated. Sudan grass was grown for hay or seed by 18 cooperators. Ten cooperators grew peanuts as forage for hogs and for seed. Sweet clover was grown by 21 cooperators, and 19 cooperators each grew four varieties of oats. In 7 counties the specialist assisted agents in conducting a 5-acre corn contest, 140 farmers being entered.

Under this project the State gave attention to demonstrations with negroes in six or eight counties in central Missouri, where live three-fourths of the negro farmers of the State who own their farms.

Demonstrations through permanent organizations.—The purpose of this project was to provide the machinery for organizing farmers' community clubs with a program of activities centered about systematic demonstration work in agriculture and home economics.

The greater part of the time of one specialist was given to this project since January 1, 1916. The work proceeded slowly but appears to be on a substantial footing. Only a small proportion of the communities reached were newly organized. In most cases the service of the college was in the direction of reviving partially dead organizations and strengthening weak ones. The best work was

done with a few of the strong organizations which by their own initiative sought the service of the college.

Thirty-nine different communities were worked with and 68 different communities visited, 4,006 people attended meetings, 202 farm visits were made, 49 active cooperators secured, and 203 tentative arrangements for cooperation are under way.

Cooperative demonstrations included: (1) Tile drainage; (2) ditch filling, control of erosion; (3) liming for clover; (4) use of fertilizers; (5) seed-corn selection and care; (6) growing alfalfa; (7) inoculation of alfalfa; (8) economic feeding of live stock; (9) keeping milk-production records; (10) Hessian-fly control; (11) hog-cholera control; (12) orchard pruning and spraying; and (13) keeping poultry production records.

Farm buildings and construction.—The work under this project was restricted mainly to the distribution of blue prints and specifications for concrete silos, stock tanks, dipping vats, and fence posts. Altogether over 200 blue prints were distributed, 15 per cent of these were used with or without modification.

OUTLOOK.

Developing of the country-agent work has been retarded during the year owing to the resignation of the State leader and unavoidable delay in appointing his successor. The significance of the county-agent organization in extension work is, however, becoming more and more recognized both by administration offices and the extension specialists. The prospect for the more rapid expansion of the county-agent work is promising and the outlook for the boys' and girls' club work especially good.

MONTANA.

Division of Extension Service, Montana State College, Bozeman.

F. S. COOLEY, *Director.*

Organization and administration.—Heretofore control of the State agricultural college has rested with the State board of public instruction. By recent act of the legislature it was made the College of Agriculture and Mechanic Arts of the University of Montana. The organization of the division of extension service remained about the same as during the previous year. The farmers' institute work has practically been taken over by the extension division and is being organized as a distinct administrative division. During the year 18 persons were engaged at full-time extension work, 16 men and 2 women. Ten of the 16 men are county agents. Two full-time specialists have been employed. Members of the college and station

staff are used in connection with farmers' institutes and short-course work.

Publications.—Six bulletins relating to home economics, two relating to club work, and two on agricultural subjects were published within the year. The mailing list of the experiment station is used. There is also a special mailing list for boys' and girls' club members to whom only bulletins relating to that work are sent.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal-----	\$12, 950. 01
Smith-Lever, State -----	2, 950. 01
United States Department of Agriculture, farmers' co- operative demonstration work-----	7, 768. 09
United States Department of Agriculture, Bureau of Animal Industry-----	1, 755. 00
State appropriations-----	20, 767. 00
County-----	7, 100. 00
Other sources within the State-----	1, 900. 00
Total-----	55, 190. 11

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, boys' and girls' club work, live-stock demonstrations, and farm management. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairy demonstrations, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 7; June 30, 1916, 9; funds expended, \$29,373.16.

The work was conducted as last year, with a county-agent leader in charge. The work of the agents in Montana is confined to a single county for each agent, except in one case, where an agent works in two adjoining counties. During the year four farm bureaus were organized, and effort is being made to place a farm bureau in every county in the State having a county agent. The American Equity and the Farmers' Equity are active organizations in the State, and are cooperating cordially in support of the county-agent work.

Owing to the sparse settlement and the great size of the counties in Montana much of the work of the agents was with individual farmers. Effort was made, however, during the year to organize the work under distinct projects, and much progress has been made.

The following are the main lines of project work: (1) Forage crops; (2) cereal crops, including variety demonstrations; (3) blackleg; (4) boys' and girls' club work; (5) farm management; (6) standardization of farm crops; (7) crop improvement; (8) flax; (9) pit silos; and (10) potatoes.

The agents conducted 1,032 demonstrations, at which 102 demonstration meetings were held, with an attendance of 1,107. Nine-tenths of these demonstrations were on cereal crops, forage crops, live-stock diseases, and plant diseases. Much of the work in crops has been to introduce improved varieties and to standardize crops. In Sheridan County 2,000 bushels of improved flaxseed were sown in the county in 1915 by 32 demonstrators. In 1916, 65 demonstrators were secured, who sowed 1,500 acres. Practically 20,000 bushels of clean, pedigreed flaxseed will be secured through these demonstrators for sale throughout the county another spring. This seed commands about 25 cents per bushel above the market price. The project provides that each demonstrator grow the flax carefully and free his field from weeds and any mixture of voluntary grain. A sample of the seed is taken to the State college laboratory for germination tests. It is hoped to extend this work to other grains and thereby to standardize and increase their yields and value. Montana suffers great losses from blackleg. In Teton County the county agent conducted a campaign for the control of blackleg. Articles were printed in the local papers, circular letters were distributed, and 50 farmers attended 10 demonstrations of the method of vaccinating and its value. It is proposed to continue the project until blackleg is under control in the county. There have been vaccinated by the agents or at their suggestion 8,299 head of cattle.

Home economics.—Because of the newness of the work, the large area to be covered, and the limited number of workers in the field, the service has consisted largely of a propaganda of practical ideas and processes with comparatively little "follow-up" instruction. The subjects presented related largely to foods and household equipment. Meetings were held under the auspices of farmers' institutes, teachers' institutes, State fairs, women's clubs, and ministers' meetings in 20 counties. Present plans contemplate a continuance of last year's program with the additional features of thorough follow-up instruction.

Boys' and girls' club work.—This work was in charge of a State leader until July 1, 1916. From July 1 until early fall it was without leadership, which interfered with the follow-up work essential to the success of projects during the summer. The State leaders in charge of the work for the first and latter parts of the year worked in direct cooperation with the State department of education, county

superintendents of schools, and teachers, and received direct leadership and cooperation from a number of the county agricultural agents. Farmers' organizations, business men, and many interested individuals are giving their indorsement and support in connection with the work.

The State leader in charge of the work during the first half of the year outlined and started four club projects consisting of 129 club groups, with a total enrollment of 1,542. Only a limited number of these young people have as yet been reported as finishing the work. About 78 per cent of the leadership within the State was made up of volunteer unpaid leadership. Five of the champions of 1915 attended short courses in 1916 at the college. Instruction sheets and circulars were furnished as project instructions, the total number issued being 2,500. The work was organized in most of the counties of the State. Quite a number of boys and girls who undertook the corn-club work did the work, but no results are available because of the break in leadership and from the fact that no organization was perfected for rounding up members and securing reports. The same thing was true in regard to the other three projects—potato clubs, home garden and canning, and mother-daughter clubs.

Live-stock demonstrations.—Much of the work done by the leader of this project relates to prevention of live-stock diseases. Lectures were given at farmers' institutes and short courses. Some attention was given to the vaccination of cattle as a protection against black-leg. Considerable time was given to cooperation with county agents in conferences and demonstrations and in addressing meetings in the promotion of live-stock interests.

Farm-management demonstrations.—Farm-management demonstrations continued as an important part of the county-agent work, and within the year the agents, assisted by the farm-management demonstrator, extended the work to 12 counties. In these counties 304 farmers were given assistance in summarizing and analyzing their farm business. As a result of this study, 43 farmers decided to make some change in their farm organization as a means of increasing the net income. To assist farmers in keeping a more accurate record of their business, a special farm-account book was prepared, but it was not available for the farmers' use until late in the year. However, 28 farmers started a simple system of accounts, and thus will be able to study and plan their farm business much better in the future.

OTHER EXTENSION WORK.

Dairy demonstrations.—This project was conducted in direct cooperation with the Dairy Division of the United States Department of Agriculture and with the active cooperation of the county agents

in counties employing agents. During the year the leader assisted in the construction of eight silos, two of which were homemade, at an expense of about \$110 each. He assisted in the construction of one large milk house and induced 31 individual owners to keep herd records, representing 305 cows. Most of the work enumerated above was done in Flathead County as the result of intensive efforts. In Missoula County nine owners kept herd records, representing 215 cows. The first and only cow-testing association was organized in the Bitterroot Valley. Milk-testing demonstrations were also given to 10 pupils at the Brocken School. The leader assisted in four extension schools and in the organization of one cooperative creamery and three cheese factories. Assistance was also given to individual owners in the selecting of herd bulls. The formation of a farm bureau and the employment of a county agent in Flathead County was largely due to the work of the leader of this project. This work was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Farmers' institutes.—During the year there were 161 farmers' institutes, the total attendance being 21,334. There were 59 lecturers, 16 of whom were members of the college staff, 22 of the station staff, and 21 from outside sources. Farmers' institutes are supported by a State appropriation. So far as is practicable the programs of the institutes are arranged to connect closely with the projects of the State specialists and the county agents.

OUTLOOK.

The conduct of extension work in Montana presents problems of administration and organization not usually encountered. With the large, sparsely settled counties, with the agricultural practices in the formative stage, with the division of the State by mountain ranges, and with the widely varying climatic conditions the problem of reaching the rural people and of making the instruction effective is a very difficult one. The county-agent work is serving as a means by which the sparsely settled communities are establishing their entity and by which the best practices as determined by the experiment station and as worked out individually are being made known to the remotest settler.

The live-stock interests of the State are receiving attention by the county agents and by specialists under well-organized projects. Attention was very properly given to problems of management and disease control in connection with beef cattle. The dairy interests are rapidly growing in importance, and demonstrations in silo construction, milk testing, and dairy-herd management are in increasing demand. Change in leadership in the boys' and girls' club work interfered somewhat with results for the year. Under the new

leadership and with provision for more definite local follow-up work, particularly during the summer vacation period, the work under this project should assume relatively greater importance as measured by results at the end of the season.

NEBRASKA.

Division of Agricultural Extension Service, College of Agriculture,
University of Nebraska, *Lincoln*.

C. W. PUGSLEY, *Director*.

Organization and administration.—Extension work for 1915-16 was conducted under the same administrative plan as for the previous year. An advisory extension council composed of heads of subject-matter departments with the dean of the college and the extension director, meets once a month to consider extension problems. The extension staff also meets with the extension director monthly to consider extension problems.

During the year the leaders of the dairy and home-economics projects resigned and their successors were appointed, one additional home-economics instructor was secured, a leader was placed in charge of the new agronomy project, and four new county agents were employed.

The following new projects were taken up during the year: Extension schools, animal husbandry, dairy demonstrations, agronomy, horticulture, and agricultural engineering. The work under these projects had formerly been conducted under one project, entitled "Specialists."

Cordial relations continued between the extension division and State associations representing the various agricultural interests.

Publications.—Five publications were issued on Smith-Lever funds, including the report of county-agent work. Instruction sheets were also printed for boys' and girls' club work.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$20, 715. 89
Smith-Lever, State.....	10, 715. 89
United States Department of Agriculture, farmers' cooperative demonstration work.....	12, 664. 62
United States Department of Agriculture, Bureau of Animal Industry.....	2, 883. 62
State appropriations	15, 125. 97
College.....	4, 850. 00
County.....	12, 000. 00
Other sources within the State.....	37, 500. 00
Total.....	116, 455. 99

Smith-Lever funds were used in administration and in support of the following projects: Administration, county agent, home economics, extension schools, boys' and girls' clubs, animal husbandry, agronomy, horticulture, agricultural engineering, and farm management. Funds from the United States Department of Agriculture were used in the support of the following projects: County agent, boys' and girls' clubs, pig clubs, dairy demonstrations, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 8; June 30, 1916, 9; funds expended, \$29,426.74.

The work was conducted as last year, with a county-agent leader in charge. In most of the counties in the State there is a farm-management association supporting county-agent work. These associations are for the purpose of raising funds for the support of the county-agent work and to assist the county agent in the planning and direction of the work. The agents have found it, however, advantageous to organize the farmers into special groups, such as cow-testing associations, potato associations, hog-cholera-control clubs, etc. There seems to be a marked improvement in the sentiment of the farmers throughout the State in favor of county-agent work.

The main lines of county-agent work are written up in project form. These include (1) live-stock improvement, including feeding and disease-control demonstrations; (2) dairying, including cow-testing associations; (3) potato improvement, including marketing; (4) farm management; (5) pocket-gopher control; (6) oat-smut control; (7) agricultural engineering, including irrigation and drainage; and (8) boys' and girls' club work. In a number of cases these main projects have been subdivided into minor projects. The tendency is toward much more definitely planned work.

Five hundred and seventy-three demonstrations were conducted, at which 273 meetings were held, attended by 3,279 people. The most important demonstrations were those relating to live-stock disease control, horticultural work, including potato work, and cereal improvement.

The potato crop is an important one, especially in western Nebraska. In Box Butte County demonstrations were conducted to show the value of treating seed potatoes for disease. On the five farms in widely scattered areas in the county where records were kept of the yield a gain of 10.9 bushels per acre in favor of the treated seed was made, with an average net profit of \$13.50 per acre. One

thousand seven hundred and ninety-three acres were planted with treated seed.

The marketing of farm crops is receiving considerable attention from agents. In the western half of Nebraska the main cash crop is potatoes. Since this section of the State is newly and sparsely settled it is comparatively unknown as a potato-producing section and there has not been keen competition in potato buying. In co-operation with the Office of Markets and Rural Organization of the United States Department of Agriculture, a field man was stationed at Alliance, Nebr., to issue daily bulletins on the market price of potatoes. The agents secured the names of potato growers who had 3 acres or more of potatoes for sale, and on September 21, when the market service sheet was issued, 1,500 growers and shippers were listed. Circulars were sent to these showing freight rates on potatoes to the principal market centers. A survey of the prices offered prior to this had also been made showing that the producers were offered about 60 cents per bushel, while the market centers were paying from \$1.10 to \$1.25 per bushel and the freight to those points was from 10 to 15 cents per bushel. In less than three weeks the local price paid to growers was increased from 60 cents to \$1.05 per bushel, or 45 cents per bushel increase, while the price at the principal market centers was practically the same as on the first day of the service.

Before the close of the season 2,000 growers and shippers in Nebraska were receiving this service. Many farmers have written in, stating that they received from 10 to 40 cents per bushel more for their potatoes by having these daily market quotations at hand. A great many farmers indicated the value of the service to them as varying from \$300 to \$1,100.

Many hogs are raised in Nebraska and the control of hog cholera is an important line of work. In Seward County the farm-management association owns a number of sets of instruments for hog-cholera vaccination. These are loaned to its members. The serum and virus used are bought at wholesale rates for members. In this way a saving of about 35 per cent on the cost of vaccination was made possible. The association has agreed that the agent will do nothing but demonstrate the use of instruments and designate the size of doses. During the year 5,798 hogs were vaccinated in this way. The percentage of loss in immunity work has been about four-tenths of 1 per cent. The percentage of loss in cholera herds has been about 15 per cent. To further the control work, hog-cholera-control clubs are being organized in all the neighborhoods that are infected.

The treating of seed oats for smut has in some counties become the established practice. In some counties, however, seed-oat-treatment

demonstrations were conducted. One thousand six hundred and fifty-nine farms are known to have sown treated seed on 40,859 acres.

Home economics.—During the fiscal year 1915–16 five extension workers in home economics reached 46,590 women through farmers' institutes, women's club meetings, miscellaneous meetings, and 24 extension schools, six months being given to extension-school work. It is planned during each school to organize a women's club whenever there is no such club in the community so that a permanent organization may be formed to attend to home-economics extension for the community. This organization work is well illustrated in the results secured in one community 8 miles from a railroad. At the close of the school five women's clubs were organized, representing as many neighborhoods. It seemed to these clubs that there was urgent need for a community playground, so a canvass was made of the farmers to see if they would grant a Saturday half holiday to their hired help and children. As unanimous consent to such a plan was obtained, the clubs leased 4 acres of land adjoining the schoolhouse and held a building bee to clear the land and prepared a tennis court, baseball diamond, and croquet grounds. This playground is extensively used by the people of the community.

A special type of extension school was conducted in four communities during the year. At these schools one instructor meets the women of the community in the home of one woman where the regular housework forms the basis for discussion of home-economics principles. These extension schools conducted in the farm home did much to secure the adoption of more satisfactory methods.

Work is being done in several counties to prepare the way for a woman county agent.

Extension schools and farmers' courses.—Twelve schools for adults were held during the year, none of them being held in counties having agents. No report is kept of the attendance. Eight different schools are offered, and an attempt is made to place responsibility on the local people by requiring at least 100 men and 100 women to promise to attend, a membership fee of \$1 being charged to men and 50 cents to women. No club work is planned. Agricultural engineering, animal husbandry, and agronomy were the principal subjects asked for by the various communities.

In addition to the regular schools one-day meetings on the farmers' institute plan are conducted under the auspices of the extension division. During the year 125 of these institutes were held, with an approximate attendance of 30,000. To conduct this work the State made an appropriation of \$5,000, and \$7,500 was contributed by the communities in which the institutes were held.

As a part of boys' and girls' club work, junior extension schools were conducted for young people who were from 10 to 18 years of

age. These five-day schools, usually held at the county seat and organized by the county superintendent of schools, took up both agricultural and home-economics subjects. Seven schools were held during the year, each school having four instructors, two men and two women. Seven junior institutes of a similar nature were also conducted. Two instructors were present, and the schools were not held at the county seat.

Boys' and girls' club work.—Club work continued throughout the year under the direction of one leader in charge and three assistants working out from the college, an increase of one leader in the girls' work over that of 1915. The work was greatly strengthened by the employment, in cooperation with local boards of education, of 26 people to supervise the boys' and girls' work during the summer vacation period. In most cases the salary and traveling expenses of these leaders were paid by the local people, but their work was supervised by the State club leader.

Seven subject-matter projects were outlined as the work for the 364 clubs of the State. A total membership of 6,986 was enrolled, of which 2,451 completed all the work as outlined by the State leaders. Four thousand seven hundred and thirty-one of the members did some or all of the work during the season. Seventy-five per cent of the club enrollment for the year were new members. Thirty-seven per cent of all the club work in the State was supervised by paid leaders. Sixty-eight per cent of the results obtained for the year, however, were secured under the supervision of these same paid leaders. The State club leader and his three assistants conducted 70 canning demonstrations, 102 field demonstrations, 1 club fair and festival, 1 leader-training school, 50 local club exhibits and festivals, 20 district fairs, made an exhibit at the State fair, and visited 500 club plats during the year and furnished follow-up instructions to all clubs.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 150 members, reporting 170 acres, producing 8,500 bushels of corn; potato, 77 members, reporting 39 acres, producing 5,647 bushels of potatoes; garden and canning, 139 clubs, 1,405 members, reporting 8,931 quarts of canned fruit and fresh vegetables, estimated to be worth \$11,435.68; poultry, 75 members, reporting a production of 1,875 chicks; sewing, 100 members, reporting 2,250 articles made; pig, 168 members, reporting a production of 38,468 pounds of pork.

Pig-club work was conducted in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture.

The experience during the past year with the 26 district leaders has demonstrated very definitely the importance of having some one

in charge of the work in every district or community who is to some degree, at least, responsible to the supervising officers for the work during the vacation period. With the encouragement that comes from these paid leaders, the increased appreciation on the part of the public-school forces as to the proper place of club work in the community, and the increased interest and added efficiency of the county agricultural agents in their relation to the work, the future of the club work in the State appears very promising. The department of education gave definite indorsement to the work through public addresses and written circulars and through the teachers' institutes of the State.

Animal husbandry.—The animal-husbandry specialist spent eight weeks in extension schools and six weeks in miscellaneous meetings, including those carried on in response to requests from county agents. The aim has been to get farmers to keep feeding records. As a result 20 farmers are keeping records of their hog and calf feeding.

On one farm two lots of hogs averaging 57 and 58 pounds, respectively, at the outset of a feeding demonstration, weighed 92 and 133 pounds, respectively, in favor of a self-fed lot two months after the demonstration began.

Agronomy.—Since the specialist began work in September, 1915, he has given special attention to crop rotation, for the purpose of retaining humus and nitrogen in the soil. Five months were spent in presenting this matter at the extension schools, and in addition 40 miscellaneous meetings were held in the interest of this project.

Horticulture.—Although fruit growing in the State is important, it is not considered one of the large commercial enterprises. To the end that it may attain a more important place, demonstrations in the fundamental features of successful fruit growing were undertaken.

During the year 44 demonstrations in pruning and spraying orchard fruits and grapes were held on farms. In three orchards systematic work was done throughout the season to control insect pests and diseases. From one of these orchards containing 17 acres a carload of apples was sold at \$2.75 a barrel. Last year the same trees were loaded with fruit, but because of disease and worms the owner was not able to market them. The demonstration in this one orchard has induced four near-by farmers to prune their orchards, three to prune grapevines, and five to spray apple trees.

The results in the other demonstration orchards have not been so striking, but have been helpful especially in stimulating more care in fruit raising. Of persons living near the two demonstration orchards referred to, seven pruned their orchards, seven sprayed once more than usual, and six pruned grapes. Two owners purchased sprayers.

During June the leader visited orchards covering an area of 1,400 acres. These growers were sent specific instruction on orchard management. Circular letters on the following subjects were sent to 98 fruit growers: Fighting blister cancer, ordering spray materials, pruning the orchards, spraying schedules for apples, the necessity for a third spray, and the "second-brood" spray.

Agricultural engineering.—Assistance was given in the planning of 50 farmsteads; in the installation of 30 drainage systems; in the improvement of 73 farm buildings; in the construction of 9 sewage-disposal systems, 10 silos, and 13 water systems.

Considerable use was made of blue prints and written instructions. A definite follow-up system was devised whereby the leader can acquaint himself and others of the progress made in all lines of his work. In addition to this work, two months were spent in extension schools and one month at other meetings. This is one of the most popular, as well as one of the most effectively arranged, of the various extension projects.

Farm-management demonstrations.—Demonstrations were continued in the 10 counties where started last year and begun in 3 other counties.

Within the year 650 farmers cooperated by working out with the county agent or farm-management demonstrator a summary and analysis of their farm business. Two hundred and eighty-seven of these farmers also cooperated the preceding year. After studying the analysis of their business, 51 farmers discovered some weak place in it and decided to remedy this weakness, and thus, if possible, increase the net income from the farm.

In connection with the demonstrations, 834 farmers in the 13 counties planned to keep farm accounts in a specially prepared book. Assistance will be given these farmers in summarizing the books at the end of the farm year and in interpreting the results as a basis for making plans for the following year.

Two farm-management demonstrators devoted their entire time to this work and active assistance was given by the county agents.

OTHER EXTENSION WORK.

Dairying.—A larger part of the dairy-extension work was carried on in the eastern part of the State. Four small cow-testing associations were organized which cooperate in the employment of two full-time testers. These associations represent 52 herds, having a total of 810 cows. During the year 6 individuals and 6 institutions started herd records with 299 cows. Thirty-four were found unprofitable and were sold.

One boys' cow-testing club was organized with 14 members; 11 members completed the work. Methods followed in this club were the same as those used in regular cow-testing association work.

Personal advice was given to individuals and public institutions in the selection of 11 grade cows, 3 pure-bred cows, and 9 pure-bred bulls. Advice was given in the construction of 4 silos, 4 barns, 4 milk houses, and also in the remodeling of 4 barns.

A demonstration was conducted at the State fair, where dairy records kept on five cows were shown with the animals to illustrate the value of keeping records and to see the futility of judging a cow's worth by looking at her. Addresses were given at 19 farmers' institutes and special meetings, and 14 meetings were held at the request of the county agents.

The work under this project was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

OUTLOOK.

The work of the extension division is well organized and administered. The county-agent work is slowly growing in favor, the farmers desiring help more especially along the lines of marketing and the control of animal diseases.

Especial stress is placed in Nebraska on the development of boys' and girls' club work and on paid local leadership. This work is being carried on in close cooperation with the State department of education, and the future of this movement looks most promising.

NEVADA.

Agricultural Extension Division, University of Nevada, Reno.

C. A. NORCROSS, *Director*.

Organization and administration.—In the organization of the University of Nevada the agricultural-extension division is conceived to be coordinate in rank with the college of agriculture and the agricultural-experiment station. The extension staff consists of the director and extension specialist in dairying, home economics, and animal-disease control. Two assistants in club work were appointed during the latter part of the year; and two district agricultural agents were appointed after the beginning of the new fiscal year, the director assuming the title and functions of county-agent leader. The veterinarian in charge of extension work in animal-disease control is connected with the veterinary-control service of the university.

Publications.—The publications of the year comprised 11 bulletins in editions varying from 2,500 to 6,000, with a total of 32,000 copies; 4 leaflets in editions of from 1,000 to 1,500, the total being

4,500 copies. A large part of each edition was sent to classified addresses, the remainder being kept to supply special requests. Farm press bulletins were distributed early in the year, after which the series was discontinued.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$10, 832. 94
Smith-Lever, State	832. 94
United States Department of Agriculture, farmers' co-operative demonstration work	117. 83
United States Department of Agriculture, Bureau of Animal Industry	1, 450. 00
State appropriations	3, 985. 02
Total	17, 218. 73

Smith-Lever funds were used in support of the following projects: Administration, home economics, boys' and girls' club work, animal-disease control, dairying, and specialists. Funds from the United States Department of Agriculture were used in the support of the following projects: Boys' and girls' club work and dairying.

A detailed statement of receipts and expenditures has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—No county-agent work was conducted in Nevada during the fiscal year 1915-16. Arrangements were made for the installation of the work in two districts in 1916-17—one in northern Nevada, comprising the agricultural region adjacent to the Humboldt River Valley, and another in two counties in southern Nevada.

Home economics.—The leader of this project is also leader of the girls' club project, and it has seemed advisable to give a large portion of the attention during the year to girls' club work. The leader, assisted by 2 extension workers and 2 members of the resident home-economics teaching section of the college, visited 778 homes and gave 23 lectures, 13 canning, 7 cooking, and 6 sewing demonstrations, and conducted 1 better-babies' contest, with 31 babies entered. The total attendance at these meetings was 2,379.

Boys' and girls' club work.—The work with boys and girls in agriculture and home economics is carried on largely by means of club projects and boys' and girls' contests. One leader and two assistants were engaged to direct the work for the year. These leaders worked in direct cooperation with the public-school forces of the State.

The work with boys and girls included eight agricultural and home-economics projects. It consisted mostly of individual-enroll-

ment contests. Three club groups were organized. The total enrollment in both individual contests and club work was 1,995. Out of this enrollment 1,229 completed all the work, including the making of final reports. Follow-up instructions were distributed from the State college. Seventy per cent of the enrollment was secured by paid local leaders, the other 30 per cent by volunteer leaders, teachers, county superintendents, etc. Forty per cent of the results secured is credited to the unpaid volunteer leaders, and the other 60 per cent to the paid leaders. The State leaders conducted 10 canning demonstrations during the year, held 26 field meetings, conducted 2 district fairs and exhibits, 3 leader-training schools, and made exhibits of club products at 2 county fairs and at the State fair. One of the State leaders visited 329 club plats and club members during the year.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Potato, 17 members, reporting 1.1 acres, producing 263 bushels of potatoes; garden, 234 members, reporting 2,860 square rods, yielding products estimated to be worth \$1,716; poultry, 11 members, a production of 206 chicks and 632 dozen eggs; baby beef, 8 members, reporting a production of 4,300 pounds of beef; pig, 16 members, reporting a production of 3,116 pounds of pork; sheep, 17 members, reporting a production of 24 lambs; cooking, 918 members, reporting a production of 6,687 pieces of baking.

Boys' and girls' club work is comparatively new in the State. The year 1916 was the first year in which any definite amount of leadership was given to the work. The work is handicapped because of the enormous distances between members and farms. These, coupled with the fact that the public-school teachers are unable to remain in the communities to lead the work during the summer vacation period, make it difficult during the first year to secure results commensurate with the extension funds invested.

Dairying.—Extension work in dairying is done in cooperation with the Dairy Division of the United States Department of Agriculture. During the year 12-month records were kept of 1,017 dairy cows out of a total of 1,426 for which records were begun. The records showed that twenty-eight 2-year-old cows produced in excess of 200 pounds of butter fat each; that twenty-three 3-year-old cows produced in excess of 250 pounds each; and that 72 mature cows produced more than 300 pounds apiece. "Certificates of merit" were issued for each of the cows of the three classes on condition that she was found free from tuberculosis. The testing of these candidates for certificates led to the testing of many other cows and was of value in promoting the health of dairy herds. An important out-

come of the record keeping is the determination of many of the owners of certified cows to replenish their herds by raising the heifer calves of the selected high-producing cows.

Another development of importance promises to result from the work of a club of boys who took a four months' course of instruction in herd-record work and the use of the Babcock tester. Eleven boys were taking the course at the close of the year. Those completing the required work and receiving a grade of 90 per cent on their reports and final examination will be given certificates as "qualified cow testers."

The dairy specialist visited 393 farms; participated in 10 meetings, with a total attendance of 1,408; visited 15 schools to present club work in dairying, resulting in introducing herd-record work and milk testing into 4 schools; and gave assistance in building 1 silo and 1 milk house.

Animal-disease control.—The animal-disease control work is done in close cooperation with the State veterinary-control service. Work was done in connection with anthrax, blackleg, hemorrhagic septicemia, hog cholera, and a number of other diseases, including several of poultry and sheep. It is estimated that 100,000 head of stock are now annually vaccinated by owners and their employees as a result of instructions given by the veterinary-extension specialist and members of the control staff. The extension specialist has succeeded in showing stock owners what ought to be done and how it could be done, and in inducing them to adopt proper preventive treatment instead of delaying until forced by the control service to submit to regulatory measures.

A single illustration will serve to show how difficult situations can be met. In a certain valley hog cholera was prevalent, but farmers did not believe that the extension veterinarian could cure or control it. Instead of invoking the police powers of the control service, arrangements were made for a demonstration. Thirty shoats were brought from farms outside of the infected area and placed in an infested corral with five cholera-sick hogs. Of the 30, 17 were given serum treatment. The result was that the 5 sick hogs died, 12 of the untreated shoats died, and 16 of the 17 treated shoats survived. This demonstration brought about a general change of sentiment throughout the community.

Specialists.—Work was done by specialists, with the director as leader, in agronomy, dry farming, horticulture, entomology, marketing, animal husbandry, and rural organization. The director of the experiment station and all members of the staff of the college of agriculture were subject to such field assignments for demonstrations and lectures as would not interfere with their college or sta-

tion duties. About 800 letters were written in reply to questions by farmers; 171 farm visits were made for conference in regard to special problems, as follows: Soil management, 28; dry farming, 28; irrigation, 35; drainage, 7; seed selection, 22; farm management, 3; orchard management, 4; plant diseases, 15; insect-pest control, 4; and farm live stock, 26.

In response to requests from farmers, subprojects were initiated to promote the growing varieties of wheat well adapted to Nevada soils and climatic conditions and of high milling quality; to encourage the growing of sweet clover and Australian saltbush on sub-irrigated land, of which there are about 200,000 acres in Nevada; and to encourage the raising of small flocks of sheep on farms. The work under the first of these subprojects resulted in the planting of 2,300 acres of wheat according to instructions.

The specialists addressed 19 meetings, with a total attendance of 1,280. Demonstrations in horticulture were given in three different valleys, the total attendance being 115. Tests of grain were made for 24 farmers, 112 reports were made on soil samples analyzed for farmers, and farmers' meetings were held in 6 rural towns.

OUTLOOK.

Funds have not been available for all lines of extension work in agriculture and home economics. The work has, therefore, been emphasized according to the special needs of the State. Club work has developed satisfactorily. It will be noted that a relatively large percentage of those enrolled completed all the work. The dairy work, through cow-testing associations and certificates of merit to cows attaining certain standards, has created interest and seems promising. The animal-disease work has shown that control is largely an educational measure. The cooperation of the control service and the extension workers and the successful demonstrations conducted should result in lessening to a marked degree the losses of live stock from contagious diseases.

NEW HAMPSHIRE.

Division of Extension Work, New Hampshire College of Agriculture and Mechanic Arts, Durham.

J. C. KENDALL, *Director*.

Organization and administration.—Extension work is conducted on the same general plan of organization and administration as for the year 1915. Thirteen men and four women were employed full time in extension work and two men less than half time.

Publications.—During the year three press bulletins, three extension circulars, and three extension bulletins were issued.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$12, 133. 46
Smith-Lever, State	2, 133. 46
United States Department of Agriculture, farmers' co-operative demonstration work	5, 220. 61
United States Department of Agriculture, Bureau of Animal Industry	400. 00
State appropriations	300. 00
College	2, 999. 97
County	9, 941. 36
Total	33, 128. 86

Smith-Lever funds were used in support of the following projects: County agents, home economics, extension schools, dairy-cow-testing associations, orchard demonstrations, vegetable-garden demonstrations, and farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, home economics, dairying, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 5; June 30, 1916, 7; funds expended, \$19,016.33.

The resignation of the former county-agent leader on June 30, 1915, was followed by the appointment of a successor, who took up his duties at the beginning of the year. In every county employing an agent except one there is a farm bureau cooperating with the agent in his work. In this one county the grange is the cooperating organization.

During the past year the work was put on a definite project basis, the projects being approved by the extension director and the department head concerned. Following are the projects given attention in most of the counties: (1) Crop rotation, (2) green manures, (3) top-dressing timothy-hay lands, etc., (4) clover improvement, (5) cultural methods, use and value of certain annual legumes, soy beans, alfalfa, oats, and peas, (6) standardization of silage-corn varieties, (7) oat improvement, (8) spraying wild mustard and kale, (9) orchard renovation, (10) dairy-herd improvement, (11) farm-management demonstrations, and (12) boys' and girls' club work. The projects given particular emphasis were farm-management demonstrations, dairy-herd improvement, clover improvement, and standardization of silage-corn varieties.

The agents conducted 784 demonstrations, held 150 meetings in connection with them, which were attended by 4,534 people. In connection with the dairy-herd improvement project, 12 cow-testing associations were organized, with 2,840 cows under test; 465 cows were discarded by farmers as a result of testing. Outside of the associations 965 farmers individually tested their herds. Twenty-seven pure-bred bulls were secured for farmers and 69 registered cows; 131 animals were tested for tuberculosis. Farm-management demonstrations have shown conclusively the direct relation of poor cows to low labor income and perhaps more than anything else aroused the farmers to the necessity of testing their herds.

Corn varieties grown for silage were so unsatisfactory that many farmers have ceased to grow corn. Certain varieties which have given satisfactory results at the experiment station were tried out in each of the counties in order to ascertain the best variety for various local conditions. The results of these trials, some of which have been conducted two or more years, are so satisfactory that many farmers who had given up in despair are now growing corn successfully. The agents' suggestions were followed by 135 farmers in the growth of almost 1,000 acres of silage corn.

The agents demonstrated that the use of lime was necessary to success with clover, but the price of ground limestone which in some places was as high as \$12 to \$15 per ton made its use prohibitive. Through cooperative clubs, organized by the agents, limestone was secured in car lots as low as \$3.50 per ton, delivered. More than 1,100 tons were secured in this way, and the production of both clover and alfalfa made possible.

Grasshoppers, which were so numerous and destructive some years ago that hundreds of acres of grasslands were abandoned, have been practically eliminated by systematic poisoning with a "mash." It is estimated that 80 per cent of the hoppers were killed with one distribution of the poison mash. These demonstrations have encouraged farmers to plow and reseed their hill fields.

Home economics.—Extension work in home economics received the attention of one woman from January, 1915, for the remainder of the year, devoting chief attention to (1) cooking, (2) care and feeding of children, (3) invalid cooking and nursing, and (4) canning demonstrations before the 20 home-economics clubs which she organized. These clubs have a membership of 377, 90 per cent of which are farm women. This work opened the way for the employment of a woman county agent in Sullivan County on May 1, 1916. In this county three topics were selected by home-economics clubs for the year's program, viz, (1) kitchen, its equipment and arrangement; (2) food, its value, cookery, and canning; and (3) sanitation and hygiene.

Extension schools.—The specialists conducted 11 extension schools during the winter, with an average attendance of 35. Of these schools, nine were for four days, one for three days, and one for two days. The principal subjects discussed were soil fertility, farm crops, farm management, dairy and poultry husbandry, home economics, and orchards. Two of these schools were held in villages 18 miles from a railroad, and in nearly all cases they were held in small communities.

Cow-testing associations.—During the year ended June 30, 1916, 3 new cow-testing associations were organized and 8 were reorganized, making a total of 11 associations in the State. These associations have a membership of 287, with 4,375 cows tested yearly. One association in Coos County cooperates in buying feed. During the year the specialist took part in 69 meetings, attended by 2,690 people, and gave 29 lectures at extension schools.

This work is conducted in cooperation with the county agents and farmers' associations.

Vegetable gardening.—During the year 27 demonstrations were conducted in the growing of vegetables for New Hampshire cities. These demonstration plats were visited by the specialist every two weeks. Most of the work was conducted with individuals. A few farmers' meetings were conducted. In response to requests for information the specialist prepared a circular on potato culture.

Orchard demonstrations.—During the year 32 orchard-management demonstrations were held. Also 32 pruning demonstrations were conducted, attended by 585 people. Reports from 12 localities in which demonstrations were conducted show an average of 571 trees pruned and sprayed as a result of each demonstration. During the winter 95 lectures were given at extension schools, granges, clubs, etc., which were attended by 6,333 people.

Farm-management demonstrations.—Half of the time of a farm-management demonstrator was devoted to the work in the State. Five additional demonstrations were started, making seven counties in which the work is in progress.

The county agents, with the aid of the farm-management demonstrator, assisted 494 farmers in making a summary and analysis of their farm business. Of these farmers, 114 were assisted similarly the preceding year.

After comparing the analysis of their farm business with the averages of some of the more successful farms in their communities, 134 farmers decided to make some readjustments which it appeared would increase their chances for making a greater net income.

As a further result of the demonstrations, 281 farmers became sufficiently interested to keep a more accurate record of their farm

business. They were assisted in starting a simple farm-account book which at the end of the year they themselves could summarize.

Arrangements were made for a farm-management demonstrator to devote full time to the work during the coming year.

OTHER EXTENSION WORK.

Soil-fertility demonstrations and boys' club work and girls' club work were conducted during the year from funds received from outside the State.

OUTLOOK.

The work as organized provides a staff of workers practically all of whom devote their entire time to extension work. The county-agent work is firmly established and is receiving the liberal support of the people of the counties. But two counties of the State are without agents and they are developing plans for organization and work. The adoption of definite projects will serve to limit the work of the agents to definite lines. The number of projects might possibly be further limited, thus permitting greater concentration on a few important lines of work.

The demonstration feature has been emphasized, and particularly in the growth of clover, alfalfa, and silage corn have the results been gratifying. The lowering of the price of lime through cooperative purchasing by farmers furnished a striking demonstration of the possibilities of united action.

Through the increased growth of legumes and of silage corn and the influence of the cow-testing associations the dairy industry of the State is being efficiently aided.

NEW JERSEY.

The Extension Division of the New Jersey Agricultural College Experiment Station, New Brunswick.

ALVA AGEE, *Director*.

Organization and administration.—The organization remains as last year. Since the previous report the assistant county-agent leader and assistant girls' club leader resigned and the following appointments were made: County-agent leader (to begin work July 1, 1916), State leader of boys' clubs, State leader and assistant State leader of girls' clubs, two specialists in agronomy, one specialist in dairy husbandry, two specialists in horticulture, two county agents, and one assistant county agent.

Publications.—A director's annual report and 4 bulletins were printed, and 52 news letters were issued. In the past publications were sent to the experiment-station mailing list, but a special list of

7,000 to 8,000 persons was made and will be used for extension publications in the future.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$17, 645. 12
Smith-Lever, State.....	7, 645. 12
United States Department of Agriculture, farmers' cooperative demonstration work	7, 310. 12
State appropriations.....	6, 927. 23
County.....	14, 936. 67
Other sources within the State.....	600. 00
Total	55, 064. 26

Smith-Lever funds were used in support of the following projects: County agents, home economics, boys' and girls' club work, poultry husbandry, agronomy, soil fertility, fruit growing, and market gardening. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, home economics, and club work.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Seven agents were at work in seven counties on June 30, 1915, and 11 agents in 11 counties on June 30, 1916; funds expended, \$31,616.91.

The director of extension served as county-agent leader with an assistant until June 30, 1916. The work in each county was carried on under projects approved by the college and local advisory committees. Plans were made and are now being put into operation for organizing county boards of agriculture on a community basis and giving them local responsibility for the county-agent work.

The following projects received attention from many of the counties during the year: (1) Potato improvement, (2) dairy-herd improvement, (3) orchard management, (4) alfalfa and soy bean growing, (5) economical pork production, (6) poultry management, (7) standardizing and cooperative marketing of farm products, (8) green manures and cover crops, (9) corn testing and breeding, (10) organizing of home economics and boys' and girls' clubs, and (11) truck-crop improvement. The agents feel the need of reducing the number of projects and the work will be restricted to a few definite lines.

During the year 485 demonstrations were conducted, at which 193 meetings were held, attended by 4,050 people. The most important

demonstrations were those relating to horticulture (including the control of insect pests and plant diseases), soil improvement, forage crops, cereals, live stock, and dairying. In one 5-acre orchard the average yield for the four years preceding the demonstrations was less than 700 bushels. In 1915, the first year when up-to-date methods were used, the yield was 1,967 bushels of apples. In 1916 the crop was about 5,500 bushels, for which the owner received \$5,000. The total expenses were about \$1,550. In two months more than 900 people visited this demonstration, including 500 who came on an automobile tour. One of the great advantages of this type of demonstration is that it is progressive, usually giving each year better results than the previous year.

In Cape May County, as a result of the increased yields of tomatoes following the spraying demonstrations conducted in 1915, two canneries in 1916 purchased and operated traction sprayers on 80 acres on 30 farms under the county-agents' direction. Such a difference existed in the quality of the tomatoes on the sprayed areas that one cannery contracted to take tomatoes only from growers who spray.

In Mercer County, through the efforts of the county agent, a co-operative association was organized which in 1914 bought 2 carloads of selected seed potatoes, in 1915 7 carloads, and in 1916 35 carloads. Not only was \$3,000 saved in the cooperative purchasing of this seed in 1916, but an average increase of 10 bushels per acre on 1,750 acres resulted.

Home economics.—Two workers were in the field throughout the year and a third was added in March, 1916. Forty-six lecture demonstrations in canning, cooking, jelly making, pickling, and the use of the fireless cooker were given with equipment standardized by the leader of this project, each demonstration being followed by general discussions on the points illustrated. The subjects of sanitation and household decoration were presented to a number of country clubs and societies.

Six women's clubs formed have a membership of 241. No attempt was made to increase this number, as the call for assistance was greater than could be met.

Boys' and girls' club work.—One State leader devoted all his time to the boys' agricultural projects and one woman leader was in charge of the girls in their home-economics project. The work was conducted in close cooperation with county Young Men's Christian Association leaders, county superintendents of schools, and their teachers, and with county agricultural agents.

The work was directed by means of field meetings, personal visits to club plats, schools of instruction for club members and leaders, by giving local and public demonstrations to teach methods of doing the

work, and follow-up instruction. The State college through its extension service has furnished 3,900 circulars and pieces of follow-up instruction.

The State leader outlined 12 subject-matter projects in agriculture and home economics for the study and work of club members. The membership was organized into 85 club groups, containing an enrollment of 1,419; of this number, 429 completed all the work required. The total estimated value of products of those reporting was \$7,947.14. Fifteen per cent of the total enrollment were members in 1915; 85 per cent of the total results were secured under the direction of the local volunteer leaders. The State leaders conducted 175 canning demonstrations, with an attendance of 6,530; 7 district fairs in the interest of club work, 7 local fairs, 5 county fairs, and made exhibits at 2 State meetings. They visited 269 club plats and members during the year.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 11 clubs, 48 members, reporting 48 acres, producing 2,548 bushels of corn; potato, 1 club, 3 members, reporting 0.3 acre, producing 74 bushels of potatoes; garden, 4 clubs, 14 members, reporting 12.8 acres, yielding products estimated to be worth \$371.74; garden and canning, 40 clubs, 256 members, reporting a yield of fresh vegetables estimated to be worth \$774, and 12,802 quarts of canned goods; poultry, 7 clubs, 74 members, reporting a production of 930 chicks; pig, 1 club, 9 members, reporting a production of 1,626 pounds of pork; bread, 1 club, 10 members, reporting a production of 400 loaves of bread; handicraft, 12 members, reporting a production of 12 fireless cookers.

Poultry demonstrations.—The leader has brought about the building of 127 new poultry houses of the multiple-unit type for which he furnished plans at a cost of \$1.20 per bird capacity; 176 old poultry houses and barns were made over to conform to the principle of the multiple-unit laying house, at a cost for remodeling varying from 10 to 73 cents per bird capacity. Much more work was done in the organized counties than in unorganized counties, due to the fact that the county agent could keep in touch with those interested in building and remodeling and in other features of poultry improvement. A few demonstrations were made in selecting layers from nonlayers by observing physical characteristics. The leader cooperated with some of the county Young Men's Christian Associations, county superintendents of schools, and poultry-specialist clubs. There are 41 of these clubs—a gain of 5 during the year. Twelve persons were assisted in the operation of incubators and brooders, and plans were furnished and some assistance given in the making of self-feeders.

Demonstrations and advice in agronomy.—One feature under this project was the making of corn-improvement demonstrations in organized counties. Since the leader of this project did not take up his work until March 1 he gave special attention to seed-corn germination. He also secured a number of varieties of corn, each one to be used in planting two rows across a field. Twelve farmers are making demonstrations in growing soy beans, eight in raising Sudan grass, and several farmers are cooperating in the raising of sweet clover on plats ranging in size from one-eighth to one-half acre. Part of the soil is inoculated and part is not in order to show contrast in growth.

Soils and crops.—In the southern part of the State, where the experiment station has proved that nonproductive sandy soils may be made productive, the soil specialist located 15 demonstrations with soy beans, rye, and vetch, using 1-acre check plats. Cropping demonstrations were started on some of the better soils of the State.

Demonstrations in fruit growing.—Work of six types was done during the year. (1) Orchard management demonstrations, intended to illustrate work which should be done by the fruit grower—pruning, spraying, cultivating, picking, grading, packing, and marketing—were conducted in two orchards, resulting in the marketing of the crop at a substantial advance over the price received for fruit as ordinarily placed on the market; (2) how to use and also to make nailing presses which more than doubled the speed of nailing crates and boxes; (3) the use of lime, sulphur, and glue as a substitute for commercial atomic sulphur; (4) how to apply lead arsenate and sulphur in the form of dust on hillside orchards; (5) how to bud peach trees, the purpose being to work over old trees and produce commercial varieties; and (6) to illustrate the best marketing methods. The results obtained seem amply to justify the continuance of the work on a larger scale.

Demonstrations in market gardening.—Most of the work on this project was conducted in the southern part of the State on small plats of one-twentieth acre, located near a public highway. The canners arranged to lend growers the sprayers and will sell them spray materials at cost, in order to encourage the spraying of tomatoes and other vegetables used by the large canners. A demonstration was made in the growing of cantaloups to resist blight. The plants were sprayed and nitrate of soda distributed between the rows to force growth sufficiently rapid to resist disease. Eight successful demonstrations were made. Some demonstrations were made in the growing of horse-radish to prevent the forming of many branch roots. The specialist lectured at 40 farmers' institutes and 36 other meetings.

OTHER FORMS OF EXTENSIONS WORK.

Dairy demonstrations.—The leader of this project was appointed May 1, 1916. During the 60 days that were left of the fiscal year he gave his attention to the reorganizing of one cow-testing association. Steps were taken to organize three more associations during the fall in cooperation with the county agents. A calf-feeding project was undertaken and will be conducted principally in the unorganized counties.

OUTLOOK.

A recognition of the need of greater definiteness in plans points to the more effective work toward which the extension service is aiming. The county agents in particular have made plans for limiting their efforts to demonstrations that appeal so strongly to the common sense of farmers as to enlist hearty cooperation. The new plan of county organization gives opportunity for local initiative, while placing larger responsibility on the farmers themselves. The variety of service demanded of the home-economics leaders is emphasizing the need of county home-demonstration agents to do more intensive work than has heretofore been possible. The specialists are finding that they can be most useful to farmers by carrying on definite projects in close coordination with those of the county agents. They and the club leaders have seen the need of so organizing their work that it will reinforce and be reinforced by that of all other members of the extension staff, at the same time so adapting itself to the needs of county people that they will readily and almost unconsciously accept the entire extension plan as their own, to be supported by them for their own business and social advantage.

NEW MEXICO.

Division of Extension, New Mexico College of Agriculture and Mechanic Arts, State College.

A. C. COOLEY, *Director*.

Organization and administration.—The organization of extension work in New Mexico was continued on the same plan as last year. During the year farm-management demonstration work was added; two new counties were organized for county-agent work, and work in one county was discontinued; the clerical and club forces were increased; three resignations were accepted and two of the vacancies filled. Cordial relations continued with the State department of public instruction.

Publications.—During the year the extension division published 4 home-economics circulars, 6 boys' and girls' club circulars, 33 press service sheets, and 12 numbers of the Farm Courier. The Farm

Courier contains numerous concise articles each month on various agricultural and home-economics topics and is regularly sent to about 10,000 farmers and home makers.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$13, 413. 20
Smith-Lever, State.....	3, 413. 20
United States Department of Agriculture, farmers' cooperative demonstration work.....	7, 828. 47
United States Department of Agriculture, Bureau of Animal Industry.....	1, 500. 00
College.....	505. 32
County.....	11, 166. 00
Other sources within the State.....	145. 69
Total	37, 971. 88

Smith-Lever funds were used in support of the following projects: County agents, home economics, boys' and girls' club work, dairying, farm-management demonstrations, and specialists and extension schools. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, farm-management demonstrations, and dairying.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—The work continued with the extension director as county-agent leader. An assistant county-agent leader was employed, who began work June 1, 1916. There was no county organization and little in the way of local farmers' clubs with which the agents could cooperate.

Number of counties with agents June 30, 1915, 7; June 30, 1916, 8; funds expended, \$22,544.41.

The following projects received attention during the year: Winter feeding of live stock, prevention of grain smuts, grasshopper control, orchard management, boys' and girls' club work, seed improvement, farm-management demonstrations, blackleg vaccination, standardization of beans, marketing, production of Sudan grass, sheep and cattle feeding.

During the year 1,028 demonstrations were conducted and 285 meetings were held at demonstrations, attended by 5,490 people. The county-agent work in New Mexico is greatly complicated by the large percentage of the population who speak only the Spanish language. Sixty per cent of the population in New Mexico is "native" and 90 per cent of these speak only the Spanish language.

Any scheme for permanent agricultural improvements must reach these people. The Mexican bean is one of the most important crops of New Mexico, being used in a variety of ways by the native population as food and is often the principal money crop. The annual bean crop amounts to more than 7,000,000 pounds and has a value of nearly half a million dollars. As commonly grown the beans are greatly mixed, no effort at variety standardization having been made. The agent in San Miguel County is standardizing the beans grown in that county under the name of the San Miguel pinto bean. Ten thousand pounds of beans were hand picked by school children as a result of two years' work. Ninety per cent of the beans grown in this county were of a pure variety, greatly superior to the ordinary mixed beans both in quality and productiveness. These beans are being disseminated over the entire State under the name of the New Mexico pinto bean. Similar efforts were made in the standardization of corn and oats. A variety of corn was found which will succeed at 5,000 to 7,000 feet elevation. Losses of cattle from black-leg were very great. After two years' work the following results were secured in one county: Owners vaccinating in diseased districts in May, 1915, 10 per cent; owners vaccinating in diseased districts in December, 1916, 95 per cent; losses in diseased districts, May, 1915, 5 to 10 per cent; losses in diseased districts, December, 1916, $\frac{1}{2}$ of 1 per cent to 1 per cent; total number of animals vaccinated in 1916, 8,940.

In one county, as a result of county-agent work, 32 carloads of dairy cattle were introduced and a dairy association organized for the handling and distribution of the milk. The plant is located in El Paso, Tex., which is the principal market center for the county.

Home economics.—There are 22 home-economics clubs in the State, 10 of which were organized during the past year. During the year 63 visits were made to farm homes, 4,622 women were reached through extension schools and club meetings, and considerable assistance was given club leaders in connection with girls' club work at the State fair. Practically all of the work was conducted in small villages and rural communities.

Boys' and girls' club work.—Club work was conducted by the State leader and one assistant for part of the time.

Ten subject-matter projects in agriculture and home economics were outlined for the study and direction of 177 club groups, with a membership of 1,463. Of this enrollment, 563 completed all the required work. The value of products produced by those completing the work was \$10,161.15.

Thirty per cent of the total enrollment were members in the year 1915. Eighty-eight per cent of the results secured were under the supervision of local, unpaid volunteer leaders. The State leader

conducted 2 canning demonstrations, held 10 field meetings, 1 district club fair and festival; the demonstrator in home economics conducted 20 demonstrations in canning and cooking for the benefit of club members; and the State leader held a district fair, made an exhibit at the State fair, and visited 10 club plats and members.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 8 clubs, 41 members, reporting 66½ acres, producing 1,635 bushels of corn; potato, 2 clubs, 8 members, reporting 3½ acres, producing 511 bushels of potatoes; garden, 15 clubs, 23 members, reporting 6½ acres, yielding products estimated to be worth \$282.45; field crops, 19 clubs, 71 members, reporting 65 acres, yielding products estimated to be worth \$2,248.25; poultry, 39 clubs, 157 members, reporting a production of 1,660 fowls; baby beef, 2 members, reporting products estimated to be worth \$111; pig, 100 members, reporting products estimated to be worth \$2,838.61; sewing, 37 clubs, 125 members, reporting a production of 700 pieces of sewing; cooking, 25 clubs, 58 members, reporting products estimated to be worth \$147.90; rabbit, 2 clubs, 8 members, reporting products estimated to be worth \$53.

Dairying.—Results of work under this project may be summarized as follows: Silos built, 16; barns, 6; barns remodeled, 6; milk houses built, 5; milk houses remodeled, 3. Seven individuals were induced to keep herd records; two cities were assisted in drawing milk ordinances, and one milk company was organized to furnish milk to such cities. Three schools were provided with circulars for instruction in making milk tests; 78 meetings were addressed, at which the total attendance was 4,436; help was given in purchasing 158 grade cows, 10 pure-bred cows, and 13 pure-bred bulls; and assistance was given in organizing four creameries. The work under this project was conducted cooperatively with the Dairy Division of the United States Department of Agriculture.

Farm-management demonstrations.—Farm-management demonstrations were not started until near the close of the fiscal year, and consequently the farm-management demonstrator, who also acted as assistant county-agent leader, spent the short time available in becoming acquainted with conditions in the State and in making plans for conducting the work.

Specialists and extension schools.—Experiment-station specialists in agronomy, animal husbandry, biology, horticulture, and poultry received part of their salaries from the extension service, so that they might assist in special problems, demonstrations, and short courses when requested by the extension director. These specialists are also expected to answer letters from county agents and farmers, and prepare popular bulletins. During the year they made 12 visits to

county agents, each visit lasting from 4 to 6 days, and helped conduct 56 meetings and 7 short courses. When a specialist is at work in a county having an agent, he is under the direction of the agent.

OUTLOOK.

In organizing the work the extension director, with successful county-agent experience, naturally emphasized the county-agent feature of the work. While but one additional county secured an agent during the year, the results abundantly testified to the value of the work. The counties are large and sparsely settled, the majority of the residents speaking only the Spanish language. The demonstrations, however, can be understood regardless of language, and through that means the people have been effectually reached. The standardization of the New Mexico pinto bean illustrates one way in which a crop has been improved and its value increased. Through the introduction of better dairy cattle, the building of silos, the adoption of methods for control of animal disease, and the organization of a dairy association for handling the milk should result better diversification of crops and resultant soil improvement.

NEW YORK.

Division of Extension, New York State College of Agriculture, *Ithaca*.

B. T. GALLOWAY, *Director*. (Resigned June 30, 1916.)

A. R. MANN, *Acting Director*. (Appointed July 1, 1916.)

Organization and administration.—The general plan of the organization of the division of extension was not changed during the year. Each department in the college continues to be responsible for three lines of work, namely, resident instruction, research, and extension. The principal officers are the director, the professor of extension teaching, who has supervision of cooperative extension teaching, the county-agent leader, and the professors of extension in the various subject-matter departments. Cooperation with the State department of agriculture was closer than during the preceding year in the coordination and administration of the extension schools and farmers' institutes. Conferences, at which arrangements were made for the scheduling of these schools and institutes, were held jointly. The organic relationship between the extension division and the State department of public instruction has been somewhat strengthened by means of a memorandum of understanding, whereby the boys' and girls' club work is carried on more directly through the agencies of the public-school system. A very cordial relation exists between the extension division and many strong agricultural organizations of the State. The total number of persons, including county agents, who

gave full time to extension work was 83, 63 of whom were men and 20 women. Thirty-six of the men were county agents and of the 20 women 1 was a county agent. The professor of extension teaching was on leave during the year. A State leader of boys' and girls' clubs was appointed on March 1. Other staff changes were made in farm management, pomology, plant pathology, animal husbandry, and landscape gardening.

Publications.—Twelve reading courses for farmers were published and sent out to a mailing list of 20,000. Ten reading courses for the farm home were published for a mailing list of 50,000. Two extension bulletins and three extension circulars were also published. The agricultural mailing list is classified under such headings as apples, poultry, floriculture, general farming, grapes, small trees and bush fruits, and commercial vegetable culture.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal -----	\$33, 442. 72
Smith-Lever, State -----	23, 442. 72
United States Department of Agriculture, farmers' co-operative demonstration work -----	20, 821. 13
United States Department of Agriculture, Office of Markets and Rural Organization -----	679. 26
State appropriations -----	61, 754. 61
College -----	2, 855. 12
County -----	101, 045. 84
<hr/>	
Total -----	244, 041. 40

Smith-Lever funds were used in the support of the following projects: Administration, county agent, home economics, extension schools, animal husbandry, poultry raising, dairying, soil technology and drainage, demonstrations in culture of field crops, fruit culture, control of plant diseases, instruction in relation of birds to agriculture, control of insect pests, farm forestry, and farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agent, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 30; June 30, 1916, 36; funds expended, \$138,499.86.

The supervision of county-agent work continued as during the previous year, with a county-agent leader in charge and one assistant county-agent leader.

With one exception, the counties in the State having agents have farm bureaus. The greatest advance of the year was the development of the committeemen, or local advisory councilmen, in each community of the various counties. These local committees consist of from three to five men, who assist the county agent in studying local problems, suggest lines of work, help secure demonstrators, call meetings, secure local data, etc. The number of these committeemen has been increased during the year from 1,164 to 2,581, and their efficiency has increased many fold. The number of farm-bureau members has increased from 9,995 to 14,491.

The main lines of work of the county agents during the past year were: Forage crops; plant diseases, including oat-smut control; soil improvement; horticulture; dairying; and seed selection.

Five thousand and seventy-seven demonstrations were conducted, at which 1,265 meetings were held, attended by 27,970 people. The most important demonstrations were those relating to plant diseases, especially the treatment of seed oats for smut and the treatment of potatoes for scab. Forage crops, horticulture, soil improvement, and seed selection came next in order. A great deal of attention was given to the subject of dairying, including the organization of 33 cow-testing associations, bringing 17,789 cows under test, which resulted in the elimination of 820 unprofitable cows. The agents and the farm bureaus gave strong support to the dairymen's league, which was successful in securing for farmers an advance of 1 cent per quart in the price of milk shipped to New York City.

Local sources of lime were developed in 12 places, 15 limestone crushers were introduced, and 45,979 tons of lime used as a result of agents' advice. Eight agents report definite results from the use of lime on 541 acres, with an average increased yield valued at \$11 per acre. In Allegany County, through the work of the county agent and the farm-bureau association, the price of lime was reduced from \$6.50 to \$3.50 per ton. A limestone-crushing plant was installed by the farm-bureau association in Albany County, reducing the cost of ground limestone from more than \$3 to \$1.60 per ton.

Seven hundred and nine oat-smut-control demonstrations were conducted, attended by 8,909 farmers. Five thousand nine hundred and forty-five farmers pledged themselves to sow 81,230 acres with treated seed. Only 952 of these men, according to their statements, had treated their seed oats the previous year. The average yield in 533 fields, comprising 4,744 acres, using treated seed was 34.1 bushels per acre, while 396 fields, comprising 3,464 acres, sown with untreated seed gave an average yield of 29.4 bushels per acre. The average increased yield per acre due to treatment was therefore 3.1 bushels. This at 60 cents per bushel on the above acreage gave a

gain of \$229,068, and the value of this campaign for the whole State was probably more than a million dollars.

In Cayuga County the agent was instrumental in bringing in selected seed potatoes for demonstration purposes by the potato association. The total yield of $7\frac{1}{2}$ acres planted with this seed was 2,000 bushels, or an average yield of 266 bushels per acre. The average yield of common stock planted on the same farms was 138 bushels per acre. The 2,000 bushels were sold for \$2 per bushel, or an advance of 50 cents per bushel over common stock. The increased profit due to the increased yield and price was \$2,447.50 for the $7\frac{1}{2}$ acres.

Home economics.—The work included giving instruction to farmers and farmers' wives by means of demonstrations, lectures, bulletins, correspondence, and otherwise in improved methods of cooking, the problems of the family dietary, and like home-economics subjects; and the organization and conducting of farm home-extension schools through which these subjects were taught. The relationship of this project to other projects was cooperative in administering the work. Under the project 348 lectures and demonstrations were given, with a total attendance of 22,975. One hundred and sixty-nine days were spent in extension-school work, with an attendance at the schools of 6,843. Six days were spent at junior-club organization work, with an attendance of 241. Three days were spent at junior-club conferences, with an attendance of 450. One study-club meeting was held at the college, with an attendance of 125. Under this project there were also conducted 181 reading-course home-economics clubs, with 49,101 readers.

The work reported above includes subprojects in junior extension work in home economics, farm home-demonstration schools, and club reading courses in home economics for the farm home.

Extension schools.—Fifty-nine agricultural extension schools were held in 33 counties, with an attendance of 1,977 men, and 33 home-economics schools were held in 20 counties, with an attendance of 1,043. Whenever a school is held in a county having an agent the community must secure the approval of the agent to the application, and he is expected to carry out the follow-up work. He may be assisted by the extension specialists from the college as needed. It is planned not to hold a farmers' institute and an extension school in the same community in any one year.

Under this work a demonstration car was fitted up by the extension service, which was set off at various stations in the northern part of the State, where it remained from one to three hours. Talks given on various agricultural topics were illustrated by the demonstration material in the car.

Oat-smut-control demonstrations were conducted in three different counties, and farmers' week was conducted at the college under this project. This work consisted of lectures, demonstrations, and conferences, at which the total registration was 4,100.

Animal husbandry.—The workers under this project devoted 164 days to extension-school work. Outside of the extension schools the work was conducted with breeders' associations, cow-testing associations, and in feeding demonstrations. In these feeding demonstrations the farmer is induced to feed a part of his herd on the ration recommended, and feed the remainder of the herd on the ration which he has been previously using, and at the end of six months a demonstration meeting is held at the barn to determine the results. The county agent keeps in close touch with the man on whose farm a feeding demonstration is being conducted, four of these demonstrations being conducted during the past year.

Demonstrations in poultry industry.—The object of this project was to promote improved methods in poultry husbandry and to stimulate cooperation and organization among poultrymen. In order to bring about improved methods in poultry husbandry cards are given out which people may sign pledging themselves to do certain things relative to improving their poultry. Separating layers from nonlayers by judging of physical characteristics has resulted in 29,000 hens being picked out as breeders for the coming year. Exhibits and printed material have been prepared for grange meetings, fairs, poultry shows, and extension schools. During the winter the entire time of the leaders of this project is devoted to instruction at the extension schools. In one county 50 persons are keeping simple records to determine the cost of production, the farmer being visited at least once every two weeks by the poultry specialist, who makes recommendations for management of the flock. Twenty thousand hens are included in the demonstration area, the number per flock varying from 200 to 3,000. The farmers pay a small amount on the basis of the number of birds owned, which money is applied to the traveling expenses of the instructor.

Through lectures and demonstrations 17,402 people were reached, and 78 persons were helped by personal visits to their farms. Much of this work is conducted in cooperation with the county agents.

Dairying.—The work under this project consisted in giving instruction and assistance to 100 butter makers who had taken the short course at the college during the winter. Most of these men were located in butter factories throughout the State. The extension work consisted in visiting these men at their factories and giving them additional instruction and assistance in their work. Each man is required to report at intervals giving certain information

regarding the handling of the factory. Thirty-four personal visits were made to farmers, and through lectures, demonstrations, and exhibits at fairs about 500 people were reached.

Soil technology and drainage.—Instruction has been given in the nature and management of the soils of New York by means of personal conferences, correspondence, demonstrations, exhibits at fairs and other public gatherings, lectures in farm-demonstration schools, farmers' gatherings, farmers' week meetings, and other organized bodies; also by way of reading courses and extension bulletins on particular phases of soil management. Ninety-eight days were spent at farm-demonstration schools, with a total attendance of 445. The most important line of soil-demonstration work in 1916 was in connection with drainage. The first step in this work was to survey the field and prepare a blue print. If a drainage problem is simple, the farmer can then go ahead with the work. Then, demonstrations were made in the construction of drains by machines and in laying tile. The relative practicability of using ditching machines had received considerable attention. When assistance is rendered the farmer it is with the understanding that he keep a record of the results and report over a series of years. During the winter the entire time is devoted to extension schools, the follow-up work on drainage being done by the county agents.

Attention has been given to the conservation of stable manures, the use of green manures, and to the use of commercial fertilizers. Some fertilizer-plat demonstrations have been carried on in cooperation with county agents.

Demonstrations in culture of field crops.—The work consists of demonstrations among the farmers in the improvement and fertilization of meadows, the improvement of potato production, alfalfa culture, and the teaching of farm crops in extension schools. Much time was spent in the spring and summer in putting out field demonstrations and in holding demonstration meetings. During the year the various crop demonstrations were as follows: Hay, 85; corn, 617; oats, 555; potatoes, 392; pasture, 83; alfalfa, 394; vetch, 189; clover, 60; and soy beans, 72. The leader has spent 69 days in extension schools in which arrangements are made for the field work as a follow-up feature. The results of the demonstrations in each county are used as instruction features in the extension schools.

Fruit culture.—Instruction and demonstrations were given in the growth, care, and propagation of fruits by means of visits to the orchards, lectures, bulletins, and exhibits at State, county, and town fairs. Twenty-four days were spent in extension schools, with a total attendance of 122. Thirty demonstrations in cooperation with the county agents were held, with an average attendance of 25. During the fall of the year much time is devoted to judging fruit at fairs.

Control of plant diseases.—The general adoption of better methods of spraying and dusting crops were encouraged through demonstrations. The principal feature under this project was oat-smut control. While this work was conducted largely in cooperation with the county agents and through their support, as many demonstrations as possible were held in unorganized counties. In this work the farmer actively participated, applying the formaldehyde and assisting in shoveling the oats. In several counties it has already become the general practice to treat oats for smut control. A campaign was conducted among the druggists to encourage them to make window displays and use labels on the bottles showing how much formaldehyde should be used in the treatment of oats and seed potatoes. Superintendents of public schools, hardware merchants, and miller associations were enlisted in these campaigns, and posters were prepared and sent out to every railroad agent in the State. Much of this work was conducted during the month in which the demonstration car was run. A second feature under this project was dusting for the control of apple scab. The ground sulphur and arsenate of lead dust was applied in 14 different orchards in 6 different counties.

Instruction in the relation of birds to agriculture.—Instruction was given to farmers on the relationship of bird life to crops so that birds beneficial to crops might be protected by proper means and that crops might be protected from those birds that are harmful to them. Considerable work was done in connection with fairs, granges, and teachers' organizations. An exhibit was prepared and sent to the State fair. One hundred and twelve people were helped by information through correspondence. Twelve articles were written for the rural-school leaflet. Numerous questions from children were answered.

Control of insect pests.—Instruction was given in the control of injurious insects, and demonstrations were conducted in the control of insects affecting orchard crops, nursery crops, and certain vegetable crops. Thirty days were spent at extension schools. Educational exhibits of injurious insects were made at the larger agricultural fairs and expositions and at meetings of State fruit-growers' societies, and in all about 3,000 farmers were given assistance in regard to their problems of insect control.

Farm forestry.—Seven demonstrations were started, four during the past year, three having been previously established. These vary in size from 7 to 100 acres. A visit is made to the woodlot and advice is given as to the timber that should be cut out and as to the replanting and individual cutting to improve the growing timber. Signs are put up by the highway to tell what work is being done. There were 20 demonstrations in the method of thinning, covering an area of

2,123 acres. Exhibits were made at the State, county, and town fairs, and lectures were given before granges, schools, and farmers' institutes.

Farm-management demonstrations.—Farm-management demonstrations were continued during the year by the county agents in 16 counties with the assistance of 2 farm-management demonstrators. Demonstrations were also launched in five other counties.

Within the year a total of 1,212 farmers were assisted in summarizing and analyzing their farm business as a means of determining their labor incomes as a basis for deciding upon modifications in the organization and administration of their farms which promised to increase the net income. Four hundred and ninety-one of these farmers were similarly assisted the preceding year.

Ninety-eight farmers' meetings were held for the purpose of extending the work throughout the communities and to give other farmers an opportunity to receive similar assistance.

As a result of the demonstrations, 60 farmers made changes in their farm plans in an effort to make the farm more profitable, and 76 farmers started farm accounts in order that they might know more accurately what their farms were returning.

OTHER EXTENSION WORK.

Boys' and girls' club work.—Club work was organized with the present State leader in charge on March 1, 1916. The United States Department of Agriculture entered into financial cooperation July 1. The work with girls was continued by the assistant in home-economics extension work, whose work was put on the cooperative basis on November 1. The work was carried on during the year in direct cooperation with the department of education at Albany, and the public schools in the promotion of a type of work called the school-home projects.

Thirty groups were organized in the corn project, with a membership of 89. Twenty-two members completed all work, making a net profit of \$92.44. Fifty-seven members completed all work in the potato project, that had an enrollment of 220; 1,271 $\frac{5}{8}$ bushels of potatoes were produced, at a profit of \$1,007.12. Forty-two members of the home-garden project made a net profit of \$168.20 on 762 square rods. Twenty-one members of the poultry-club project completed all work, produced 1,266 dozen eggs, and managed 466 fowls. Total value of all products produced, \$2,129.

Vegetable gardening.—Cabbage was the main subject for demonstration work during the year. Some work was conducted with other truck crops. Twenty days were spent in extension schools; 84 lectures and demonstrations were given, with an attendance of

5,342. With the other extension activities, such as home-garden work, a total of 6,870 farmers were helped.

Exhibits at State, county, and town fairs.—Exhibits are sent to county fairs only when the county fair association requests it. The exhibits show ways by which farm crops, animals, and general living conditions might be improved. Forty-six exhibits were made at 24 fairs.

Reading courses for the farm.—The object in this course is to teach agriculture by selected readings and corresponding with persons not attending the college. College bulletins and lessons are especially prepared for this purpose. Advanced reading courses in fruit growing, vegetable gardening, and poultry husbandry by means of recommended textbooks and correspondence were offered. The further object was to develop and assist groups known as Cornell study clubs and to promote the study of reading-course lessons through granges, farm bureaus, schools, and other organizations. Thirty-one Cornell study clubs were formed and 20,560 persons reached. No fee is required. However, the student must buy such books as are recommended in connection with the course.

Miscellaneous field demonstrations.—This project covers miscellaneous field demonstrations and lectures and consists very largely in meeting requests from communities or groups of farmers, farm-bureau managers, and other local leaders to discuss and demonstrate spraying, pruning, care of orchards, planning and laying drains, mating pens of poultry stock, preparation for alfalfa, etc.

OUTLOOK.

The county-agent work in New York is unusually well developed. In its development large recognition has been given to the local people. Through the development of the community as a unit and the representation of each community in the advisory council for the county the people assume a large measure of responsibility for the success of the work. Practically all extension activities in the State center around the county agent and farm-bureau system. Thorough cooperation seems to exist between the college-extension division and such influential agencies in the State as the Grange, State department of agriculture, State department of education, live-stock breeders' associations, fruit-growers' associations, and other State and local associations for advancement of agriculture.

No clear-cut extension division has as yet been worked out. The subject-matter departments of the college assume responsibility, not only for subject matter taught, but in a large measure also for the administration of the work in the field. As the work develops need will probably be seen for a more clearly defined extension division and greater coordination of effort.

NORTH DAKOTA.

Division of Extension Work, North Dakota Agricultural College,
Agricultural College.

THOMAS P. COOPER, *Director.*

Organization and administration.—No changes were made in the plan of extension organization during the year. The organization of the county-agent work was given particular attention since the agent is considered to be the county or local representative of the college extension department. The total number of persons, including 15 county agents, giving full time to extension work was 25, 21 men and 4 women; more than half time, 3 men; and less than half time, 5 men and 1 woman. There was a slight increase in the number of specialists located at the central office, and these were used to develop certain lines of work planned with particular reference to counties having agents.

The State commissioner of agriculture and labor was in charge of the regulatory dairy work in the State. His assistants were also used in dairy-extension work by the extension division. The members of the extension staff cooperated with the commissioner in some features of his work. The extension director was president of the board of farmers' institutes, but the immediate conduct of the institutes was in charge of a superintendent. One member of the extension staff gave instruction at the farmers' institutes, nine persons were selected from other sources for this work. In counties where agents were located they were requested to arrange for the institutes as to the place and the program; they were requested to designate the speakers desired; and were to be in general charge of local arrangements. It was estimated that about one-third of the entire extension instruction was by means of demonstrations.

Publications.—Three bulletins were issued during the year and paid for from Smith-Lever funds—boys' and girls' club work for 1916, garden canning project, and preservation of food in the home. The total number of copies printed was 32,000. There were 10,000 names on the extension mailing list, classified as follows: Persons desiring all publications, farmers in the State, farmers outside the State, officials, extension divisions of other States, and libraries and official boards. Articles giving information relating to farm practices and farm management which developed at the experiment station and substations were prepared and forwarded to 259 weekly papers within the State and 48 agricultural papers in this and other States. The daily papers were divided into two groups, each of which received a separate service. A total of 358 articles were sent out during the year. Approximately 35 per cent of the material was used by each paper. Seven thousand eight hundred and fifty mimeo-

graphed leaflets varying from one to eight pages in length were issued by the home-economics section. Material comprising four to six mimeographed pages on lessons and suggestive programs were sent to 500 farmers' clubs during the five winter months. Eleven thousand six hundred and ninety-eight mimeographed sheets were sent to members of boys' and girls' clubs.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$16, 247. 19
Smith-Lever, State	6, 247. 19
United States Department of Agriculture, farmers' cooperative demonstration work	7, 088. 62
United States Department of Agriculture, Bureau of Animal Industry	100. 00
State appropriations	15, 625. 27
County	29, 473. 15
Total	<hr/> 74, 781. 42

Smith-Lever funds were used in support of the following projects: County agents, home economics, boys' and girls' club work, live-stock extension, and farm management. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, and dairying.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 15; June 30, 1916, 15; funds expended, \$54,560.55.

The county-agent work was under the immediate direction of the extension director. Only one county reported a county organization supporting the work of the agent. The agents generally cooperate with farmers' clubs which exist throughout the counties without any county-wide organization. Barnes County reported 22 active farmers' clubs cooperating with the agent. Several shipping and selling associations were organized by the agents. In each of 5 counties there were 2 county agents at work, so that on June 30, 1916, there were 20 agents in the State.

The agents in four counties wrote projects. In the other counties the work was very definitely planned but not written up. The main lines of work were: (1) Alfalfa introduction, (2) pastures, (3) corn, (4) live stock, (5) ground-squirrel control, and (6) sweet clover. Diversification was one of the most important problems confronting the county agents, and much of their work on crops and live stock was to secure this. Cooperative financing and marketing problems were also important and received attention from the agents.

One thousand seven hundred and eighty-six demonstrations were conducted during the year, at which 158 meetings were held, attended by 3,133 people. Four-fifths of the demonstrations reported pertained to crops while a considerable number related to farm animals, destruction of rodents, horticulture, rural engineering, soil improvement, and weed control.

The most general demonstration, which covered 168 townships in counties having agents, related to the destruction of ground squirrels. This was conducted in cooperation with the Biological Survey of the United States Department of Agriculture. The damage done in the State by these pests to crops was estimated at from \$2,000,000 to \$5,000,000 annually. Poison bait was prepared, supplied at cost to the cooperative counties, and was distributed through the county agricultural agents. Three million eight hundred and fifty-one thousand acres in the northern part of the State, in two areas, were systematically covered, and it is estimated that 90 per cent of the gophers were killed. Plans were made to follow up the work another year to complete the extermination of the pests. Twelve demonstrations in the seeding of sweet clover were conducted, resulting in a large increase in growth and a better understanding of its value. Ward County alone reported 1,500 acres. These demonstrations have shown that sweet clover fits into the rotation to better advantage than alfalfa and is well suited for pasture, especially for hogs. Special effort was made to induce farmers to grow more live stock. One hundred and ninety-nine registered bulls, 200 registered cows, 361 registered boars, 51 registered rams, and 24 registered stallions were secured on the suggestion of the agents. Two thousand six hundred and twenty-two cattle were vaccinated for blackleg and 2,492 hogs were vaccinated for hog cholera by the agents and on their suggestions. Williams County cooperated with the Office of Markets and Rural Organization, United States Department of Agriculture, in placing systems of accounting in farmers' elevators at Buford and Grenora. A representative from the Office of Markets and Rural Organization rendered further assistance in the auditing of the books of farmers' elevator companies in the county.

Home economics.—The work in home economics was in charge of a leader with two assistants and was carried on largely with farm-home short courses and farm-home women's clubs. Fifteen short courses in home economics were held. Several poultry associations for young women were organized. Forty-two counties were given some form of home-economics extension work. A total of 167 places was visited during the year, and the meetings held were attended by 21,059 women.

Boys' and girls' club work.—Club work was conducted by a woman assistant in charge. In the direction of the work the leaders cooper-

ated with county agricultural agents, county superintendents of schools, rural-school teachers, normal schools, and the department of education. The county agents gave definite local leadership and follow-up instruction with special reference to the subject matter, while the county superintendents and the teaching force took care of the organization of the work. The department of education, by commending the work through public addresses, letters, publications, etc., gave great stimulus to the work. A careful study of the State was made by the director and the club leader at the beginning of the year; certain territories selected, and these territories carefully organized and developed with a view to definite results. Members were organized into club groups with local leaders in charge, who were responsible to the State leader for the success of the individual clubs. Regular meetings were held by the club groups and additional meetings by way of short courses, movable schools, field meetings, and demonstrations were conducted by the State leader with the assistance of others for the reinforcement of the work as needed. The agricultural college, through the club leader, furnished follow-up instruction, provided subject-matter instruction, and conducted demonstrations throughout the year. During December a boys' and girls' institute, or winter short course, was held at the agricultural college at Fargo, attended by champions from every club district or county.

The total number of projects used in the work was seven. A total of 120 clubs was organized in the State, with an enrollment of 1,907. Of the enrollment, 681 started and conducted the work through the summer and 359 completed all the requirements, including the annual report. Thirty per cent of the total enrollment for the year was new members. Ninety-five per cent of the local leadership of the State was made up of volunteer leaders.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 164 members, reporting 164 acres, producing 4,511 bushels of corn; potato, 30 members, reporting 3.75 acres, producing 270 bushels; garden, 3 clubs, 56 members, reporting a production of 36,792 pounds of pork; sewing, 5 clubs, 45 members, reporting a production of 204 pieces.

Farm-management demonstrations.—Work under this project was started just before the close of the fiscal year. By June 30 a demonstration had been launched in 1 county and 11 farmers assisted in summarizing and analyzing their farm business.

OTHER EXTENSION WORK.

Rodent extermination.—The work under this project was in co-operation with the Biological Survey, United States Department of Agriculture. Reports indicate that 90 per cent of the rodent pests

were destroyed in Cavalier, Towner, Bottineau, Ward, and Benson Counties on about 6,000,000 acres. The greatest success was obtained in counties having agents, where the crops saved were worth one-half million dollars. During the year 24,000 ounces of strychnine were used in the preparation of a poisoned bait. The township officers can secure poisons through the agricultural college. The State law provides that county officers may raise an extermination fund to be used in purchasing poison. The law also provides that township officers are authorized and empowered to appoint a suitable person to poison, kill, and exterminate gophers in the township. A plan for purchasing strychnine was devised whereby the farmers secured the poison practically at wholesale cost.

Farmers' institutes and short courses.—Farmers' institutes were conducted by the State farmers' institute board. A total of 58 institutes were held, with an attendance of 13,824. In support of this work \$4,706.44 were used from the State appropriation and \$1,115 from other sources. Seventeen short courses were held during periods varying from three to five days, with a total attendance of 18,831. A membership fee was charged to defray the local expenses. Live-stock improvement, the raising of alfalfa and sweet clover, barn construction, and the marketing of farm products were the most important subjects in the short courses.

OUTLOOK.

The organization of the work provides for close cooperation between experiment station and extension forces. County-agent work has been firmly maintained under some difficulties. The absence of supporting county organizations has thrown a large burden of responsibility upon the college for the success of the work. The agents, however, have demonstrated their ability to meet difficulties and to overcome them. The most conspicuous success was probably in the rodent-control work in cooperation with the Biological Survey. Diversification of crops is the important lesson farmers need to learn, and the partial failure of the wheat crop in sections of the State will be an aid to the agents in bringing this about. Cooperation has held a conspicuous place in rural affairs. The agent has served as counselor regarding safe and unsafe enterprises. The demonstration feature was emphasized in the work, 1,786 demonstrations being conducted in the county-agent work alone. Provision has been made for the employment of a county-agent leader to assist the director in the administration of this work. Club work is somewhat difficult to organize and maintain with the widely scattered rural population. Support was given to the work by the county agents, school superintendents, and teachers. With the addi-

tion to the staff of a State club leader and additional local leadership to supervise the work through the summer vacation, club work will increase in importance in the State both from the economic and educational viewpoint.

OHIO.

Division of Agricultural Extension Work, College of Agriculture, Ohio State University, Columbus.

C. S. WHEELER, *Director*. (Appointed Nov. 1, 1916.)

Organization and administration.—During the year 1915–16 the scope of extension work in agriculture and home economics carried on by the Ohio State University has been considerably increased. At the end of the previous year the activities included extension schools, home economics, publications, and demonstrations by specialists. County-agent work had been transferred to the university, and on July 1, 1915, a county-agent leader was appointed. On the same date two new lines of work were inaugurated, namely, farm-management demonstrations and the organization of cow-testing associations. On July 22, 1916, under authority of an act passed by the General Assembly of Ohio, the management of farmers' institutes was transferred to the university. On January 1, 1916, arrangements were made for boys' and girls' club work other than corn-club work. In April of the same year this was made cooperative with the Office of Extension Work, North and West. Club work taken up with the boys was largely along the line of live-stock-judging contests, while with the girls canning-club work was emphasized.

Under the present arrangements the extension division deals with the seven following lines of extension work: County agents, boys' and girls' clubs, publications and correspondence courses, farmers' institutes and extension schools, farm-management demonstrations, cow-testing associations, and home economics, with a leader in charge of each and a force of several specialists.

Close cooperative relations have continued with the agricultural experiment station, State board of agriculture, the Grange, and State, county, and district school officials.

Publications.—The extension publications issued may be divided in three groups, namely: (1) The extension-service bulletins, a series of popular publications that are mailed to persons having their names on established mailing lists; (2) extension-service circulars, which are prepared and printed largely to promote certain extension activities and are not mailed to established mailing lists; and (3) miscellaneous odd-size publications.

During the year there were issued 20 bulletins, 26 circulars, and 3 booklets dealing with animal and poultry husbandry, farm man-

agement, extension programs, announcements, and home economics. The total number of pages in these publications was 506. The total distribution was 568,000 copies. The mailing list has been divided into 10 sections, and only such publications are mailed to each as have been requested. A news letter is mailed every two weeks to approximately 800 newspapers.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$34, 655. 19
Smith-Lever, State.....	24, 655. 19
United States Department of Agriculture, farmer's co- operative demonstration work.....	7, 458. 82
United States Department of Agriculture, Bureau of Animal Industry.....	1, 505. 00
United States Department of Agriculture, Office of Markets and Rural Organization.....	10. 93
State appropriations.....	51, 909. 98
County.....	12, 495. 97
Total.....	132, 691. 08

Smith-Lever funds were used in support of the following projects: Administration, county agent, home economics, extension schools, boys' and girls' club work, dairying, farm-management demonstrations, and specialists. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairying, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—The number of counties with agents at the beginning of the year was 8; at the close of the year, 12; funds expended, \$32,006.87. The prospect is good for several new counties taking up the work during 1917. The county-agent leader resigned and was succeeded by a new leader on July 1, 1916. The State law permits counties to appropriate a maximum of \$1,500 annually. Twelve of the 14 county agents reporting at the close of the calendar year 1916 had a county organization, with an average of 554 members. Before the university enters into cooperation with a county it requires that 10 per cent of the farmers in the county become members of such an association. In some counties county-agent work has been carried on in cooperation with the State experiment station on a county experimental farm, the station paying one-third of the agent's salary as manager or superintendent of the experimental

farm, while two-thirds is paid by the extension service of the college. This plan of cooperation is to be terminated July 1, 1917, when each agent will give his whole time to extension work. In appointing county agents, three men are recommended by the college for consideration by the executive committee of the county association which makes the selection.

All of the county agents have their work on a definite project basis, and nearly all the agents have well-developed written projects which were submitted to the different college departments for approval before they were approved by the extension director.

The main lines of work during the calendar year of 1916 were as follows: (1) Farm-management demonstrations; (2) the use of lime to correct soil acidity; (3) forage crops, principally legumes; (4) dairy improvement; (5) oat-smut control; (6) orchard management; (7) corn improvement; (8) potato improvement; and (9) boys' and girls' club work. Considerable assistance in conducting this work was given by the extension specialists of the college. The agents had an average of 22 meetings each at which assistance was given by United States Department of Agriculture or college specialists.

One thousand one hundred and eighty-six demonstrations were conducted, at which 378 meetings were held, attended by 6,713 people. The most important demonstrations were those relating to seed selection and improvement, soil improvement, forage crops, and horticulture. Dairying received considerable attention by the agents, including the organization of 12 cow-testing associations, bringing 3,960 cows under test. The agents, as part of their demonstration work, vaccinated 11,867 hogs for cholera, and reported that 35,185 hogs were vaccinated by veterinarians on their suggestion.

Several of the counties did considerable work in oat-smut control and the druggists reported an unprecedented demand for formaldehyde solution. One druggist alone in Portage County sold 36 gallons for this purpose. Eight of the counties reported a saving of \$10,066 as the result of the cooperative buying and selling done primarily through the farm-bureau associations.

Ten thousand three hundred and thirty tons of lime were used at the suggestion of the agents. The county agent in Montgomery County had 38 liming demonstrations, at least 1 in each township. Lime was applied at the rate of 2 tons per acre on 3,900 acres, resulting in an increase of 4 bushels of wheat per acre, 1,000 pounds of alfalfa and clover per acre, and a considerable increase when applied on tobacco. The average increase in production, valued at \$5.23 per acre, resulted in a total increase of \$23,400. The same agent supervised the treating for root and stem rot of tobacco seed beds which furnished healthy seed plants for 134 acres, making an

average increase of 400 pounds per acre, with an increase of \$5,360 in the money value of the crop.

Home economics.—During the year ending June 30, 1916, the farm women of Ohio received the benefit of instruction in home economics given by the leader of the home-economics project, assistant leader, and eight extension instructors. Nine more workers were employed for three months as speakers at farmers' institutes. Instructors from the extension service of the college conducted 45 extension schools of 5 days each in connection with the men's agricultural schools, with an average attendance of 49, and a total of 2,179 women. One instructor from the college, during a period of five months, organized girls' home-making clubs in 20 counties, and arrangements were made by the home-economics instructor to visit these clubs at least twice a year. For three months, beginning March 27, 1916, home-economics work was carried on with the farm women of Montgomery County by means of a home-demonstration agent in part through clubs already organized. Other clubs, which met once a month, were formed as the interest increased in the special courses for home makers. Thirty-five homes were visited more than once on invitation of the housekeepers and practical advice given.

Extension schools.—In order to secure an extension school a formal petition must be presented to the extension department signed by 25 people, the majority of whom are farmers. If a home-economics school is desired, then the names of 10 women in the community must appear on the petition. By statute but one agricultural-extension school can be held in one year in each county. Forty-five such schools were held between November 22, 1915, and March 10, 1916. The total attendance was 1,837 men and 2,279 women. The average daily attendance for each school was 42 men and 49 women. Each school continued for five days and included separate sessions for men and women. In all of the agricultural schools a course in agronomy was given. At the election of the people one additional course was offered in either horticulture, animal husbandry, or dairying. Demonstrations were conducted along such lines as the making of the moisture test for corn, the selection of good seed, and the judging of live stock.

In the home-economics schools demonstrations were made in cooking and in the selection of materials for the proper decorating of the home. It is customary to place two men and two women instructors in each school. In addition to these a specialist in poultry or concrete construction is occasionally added. Each instructor in the agricultural extension schools conducts work under other projects during the remaining 38 weeks of the year.

Farmers' week was conducted at the State university from January 31 to February 4, 1916, as one phase of the extension-school project. The program was one of practical lectures and demonstrations, given

by members of the college and university faculty, extension instructors, and by other persons prominent in agricultural affairs. In addition to the formal instruction and demonstrations arranged for provision was made for the meetings of the various rural organizations. The total attendance at these organizations and farmers' week was 2,892, 80 per cent of whom lived on farms.

A third phase of extension-school work was the county normal-school work, which was conducted at 51 county normal schools in cooperation with the State superintendent of public instruction. These five-day schools were for the purpose of giving instruction in elementary agriculture and home economics to teachers who expect to teach in rural and village schools.

Boys' and girls' club work.—The extension work with boys and girls was conducted largely through boys' and girls' clubs by a State leader and one assistant, who worked in direct cooperation with the county agricultural agents, county superintendents of schools, teachers, growers' and breeders' associations, and others interested in the vocational training of boys and girls for farm life.

The boys and girls were organized into club groups, local leaders secured to look after the interests of clubs and their work through the year. Monthly programs, instructions, follow-up material, demonstration-record blanks, and subject-matter instruction were furnished by the State leader.

Club projects and general results.—Six agricultural and home-economics projects were outlined and offered to the 336 clubs of the State for their study, having the home-project motive as a basis for their work. A total enrollment of 3,680 was secured. Out of this number 3,142 undertook the work and did part or all of the work required. Of the total enrollment, 667 members made complete reports. All of the results received from the local clubs were secured by the volunteer leaders of the State, who were directed, instructed, and supervised by the two State leaders. One hundred and thirty canning demonstrations were conducted during the year, with a total attendance of 1,300 club members and 500 visitors, and 90,950 circulars of instruction were furnished by the college. Corn-club work with boys and girls was also conducted by the State board of agriculture, who employed one State leader in charge of this work.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Potato, 11 clubs, 65 members, reporting 9 acres, producing 1,694 bushels of potatoes; poultry, 35 clubs, 150 members, reporting a production of 2,604 chicks; pig, 262 members, reporting a production of 48,965 pounds of pork; dairy record, 16 members, reporting products estimated to be worth \$340.18.

Dairying.—The work under this project consisted chiefly in giving assistance to cow-testing associations. During the year 5 old associations were reorganized and 15 new associations organized. The rapid progress in the work was due to the fact that funds were available for supervision of the work. About 7,000 cows were tested for production in the 20 associations. An example of the increased profits resulting from cow-testing work is found in the Barnesville association, where records show that through the improvement of the herds by testing and better feeding—the members have made a profit of \$6 per cow more this year than the previous year. Taking an average of the number of cows starting in the association at the beginning of the year and at the end, this would mean an additional profit to the farmers in this association of approximately \$2,000.

The Dairy Division of the United States Department of Agriculture gave active field assistance in conducting this work.

Farm-management demonstrations.—At the beginning of the fiscal year the farm-management demonstration work had just been launched in the State and a demonstration started in one county. At the close of the year 816 farmers in 8 counties had been given assistance by the farm-management demonstrator and county agents in analyzing their farm business as a basis for determining how much they were making and how they might readjust their business to make it more profitable. Of these farmers, 196 decided to keep a more accurate record of their business in the future and were furnished with a simple account book for this purpose.

Demonstrations by miscellaneous specialists.—The work on this project is conducted in cooperation with county agents, and also in response to calls from farmers in counties having no agent. The work conducted included the following lines:

(1) *Soils and crops.*—The leader of this project and his associate are assisted from time to time by additional instructors. During the year 111 fertilizer demonstrations were made, attended by 1,775 persons. Fifty-five oat-smut demonstrations were given, attended by 718 farmers. Eighteen hundred and sixty-seven bushels of seed oats were actually treated for smut by the specialists. During the four months of December, January, February, and March these specialists acted as instructors in extension schools. Also, these specialists were at the service of county agents in making up their projects for the year in soils and crop work, and they prepared material for publications on soil fertility.

(2) *Horticulture.*—The leader of this project was assisted during the spring by extra demonstrators in pruning and spraying work. Assistance was given to 35 farm homes and 51 rural schools and churches in the way of improving the grounds by proper planting and beautification. These places were visited and whenever possible

the actual planting was supervised. In most cases drawings were made by the specialists showing buildings and improvements and giving with the outline of planting plans for such work as could be readily understood by the persons served. In addition to the places visited for landscape demonstrations, this specialist made complete drawings for improving grounds by planting for 31 homes and 4 schools which sent in rough sketches of their buildings and grounds.

During December and January the specialist acted as instructor in extension schools. In March, April, and May 138 pruning and spraying demonstrations were held, attended by 3,714 persons. Other miscellaneous work done included 4 fruit-thinning demonstrations, 15 orchard visits, 3 lawn-beautification contests, 4 fruit and apple exhibits, and several special talks on the subjects of growing canning crops and tomatoes for commercial markets. Assistance was given in the preparation of the horticultural display of the fair exhibit, and one bulletin and one circular on horticultural subjects were written.

(3) *Animal husbandry*.—Work of the animal-husbandry specialist consisted in giving assistance to animal-husbandry clubs in the boys' and girls' club work. For further information see the report of club work (p. 315).

(4) *Agricultural engineering*.—This year is the first time that a man has been employed in the State to give full time to agricultural engineering. More requests have been received for his services than could be cared for. The following is a summary of the year's work done by this specialist: He planned and supervised the installation of water-supply systems on 25 farms; laid out drainage systems on 21 farms, which resulted in the tiling of 1,092 acres; assisted in planning and rearranging buildings on 22 farms; he filled 425 requests for blue prints for farm buildings and 1,500 requests for plans for self-feeders for hogs. At 33 extension schools he acted as instructor on the subject of water supply for the farm home.

(5) *Poultry*.—The work of this specialist consisted chiefly in demonstrations and instruction given to boys' and girls' clubs, poultry-association meetings, and in connection with the poultry exhibit shown during the winter months, and as an instructor in extension schools during the month of January. The following is a summary of the work done: Demonstrations and talks were given on killing, caponizing, packing, incubating, feeding, selecting, and candling of eggs, etc., before 27 poultry associations and community meetings, attended by 2,396 persons. The leader accompanied the poultry exhibit to 8 poultry shows where demonstrations and instruction were given, the estimated attendance at which was 13,800. Instruction was given at 12 extension schools; 10 candling demonstrations were held in June before meetings arranged by officers of poultry associations,

attended by 500 people; visits were made to 5 farms to help locate poultry buildings and assist with poultry work; and copy was prepared for 3 poultry bulletins—Natural and Artificial Incubation, Poultry Buildings, and Eggs for Market.

OTHER EXTENSION WORK.

Fair exhibits.—The fair exhibit, composed of charts, pictures, apparatus, photographs, and other demonstrational material, was shown at eight county fairs in southwestern Ohio and at the Ohio State fair. Two instructors accompanied the exhibit most of the time to explain what was shown. It is estimated that 50,000 people saw this exhibit.

Farmers' institutes.—Farmers' institutes were under the management of the State board of agriculture for more than 30 years, then under the agricultural commission of Ohio for 2 years. They were transferred to the State university July 1, 1915. In the institute work 36 farmers, 7 farm women, and 11 specialists (9 men and 2 women), constituting the institute force, conducted 424 regular two-day institutes of five sessions each, between November 29, 1915, and February 29, 1916. In no case were more than five institutes held in any one county. The teaching force of each institute consisted in general of two men for two days each, and a woman for one day. They gave popular lectures and demonstrations on various phases of agriculture, home economics, and rural life, as provided for by State law. The average attendance for all sessions reached the total of 413,062. The total expense of holding the 424 institutes was \$33,060.81, of which sum \$13,477.18 was incurred locally, and \$19,583.63 was paid for salaries and for traveling expense of the lecturers. The average cost per institute, including local and State expenses, was \$77.97, and the per capita cost for those in attendance was 8 cents. In addition to the regular institutes, 67 independent institutes made more or less complete reports to the university.

Correspondence courses.—During the year 6,500 applications were received for enrollment in the agricultural-correspondence courses. Because of the unexpectedly large demand for these courses, it was found impractical to complete all courses planned for the year and to take care of the students at the same time. As a result, nine courses have been completed in which are enrolled 4,644 students. These courses are as follows: Alfalfa culture, concrete work on the farm, corn culture, farm water supply and sanitation, orchard fruits, poultry farming, sheep farming, potato growing, and soil fertility. Special emphasis is placed on having all students taking this correspondence course make some application of the lessons taught, and when the students asked for additional help along the line of the course assistance has been given either by letter, by visit

from a specialist, or by a conference with the county agent. In a few cases high-school teachers have used the correspondence-course lessons as a text for their classes, the answers and the questions being sent to the university. In all cases the answers to lesson questions have been graded by persons selected by the heads of the various instructional departments of the college of agriculture.

OUTLOOK.

The work in Ohio has been continued along well-established lines. Those features of the work found valuable have been maintained and strengthened. The transfer of the farmers' institute work to the college will tend to a closer coordination of the work with the whole extension organization of the college and result in a much greater amount of demonstration and follow-up work. The county-agent work, when entirely separated from experimental work, will be strengthened in its demonstrational features. If the laws relating to financial cooperation of counties in county-agent work were more liberal, each county would have discretionary powers as regards the amount of funds it could raise by taxation. Through the expansion of the county-agent work which is likely to follow, all lines of extension work will be favorably influenced.

OREGON.

Division of Extension Work, Oregon State Agricultural College, *Corvallis*.

R. D. HETZEL, *Director*.

Organization and administration.—Extension work in Oregon was continued under the same plans as last year. Cordial relations were maintained with the various cooperating institutions and in some instances clearer understandings were reached. A memorandum signed by the State department of public instruction and the extension division provides for cooperation in the development of club work in the State. All plans for club work are jointly approved by the State superintendent of public instruction and the director of extension before they go into effect. Under this memorandum all State fair exhibits and boys' camps and schools were definitely defined as a part of club work and so brought within the jurisdiction of the extension service. All projects and plans of procedure are outlined by the extension officials, and methods for the enrollment of club members, the preparation of certain club circulars, etc., are initiated by the extension division. On the other hand, the plans for the State fair exhibits and boys' camps and schools are initiated in the office of the State superintendent of public instruction.

In correlating the work of the various projects of the extension service and clearing up relations with the staff of the experiment

station and the resident staff of the agricultural college, memorandums of understanding were drafted with many of these departments. Practically all work was placed on a strict project basis, satisfactory not only to the different sections of the extension division but to the departments as noted above.

Publications.—Twelve new extension bulletins and nine reprints of former bulletins were published, ranging in size from 11 to 32 pages each, and in editions of from 500 to 40,000. These publications were distributed only upon request, except in instances where a certain locality was particularly concerned about a definite problem covered by the publication.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$14, 446. 36
Smith-Lever, State.....	4, 446. 36
United States Department of Agriculture, farmers' cooperative demonstration work.....	8, 141. 12
United States Department of Agriculture, Bureau of Animal Industry.....	3, 479. 67
United States Department of Agriculture, Office of Markets and Rural Organization.....	1, 500. 00
State appropriations	52, 070. 08
County.....	19, 392. 65
Other sources within the State.....	532. 31
Total.....	104, 008. 55

Smith-Lever funds were used in support of the following projects: Administration, home economics, extension schools, boys' and girls' club work, and demonstrations by specialists. Funds from the United States Department of Agriculture were used in the support of the following projects: County-agent work, boys' and girls' club work, pig-club work, dairy demonstrations, farm management, and marketing.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

Home economics.—Home-economics extension was conducted largely in connection with the extension schools, fairs, meetings of federated and other women's clubs, and special two-day meetings with small groups of women in the farm home. In this latter type of work a farm home is selected and the neighboring women are invited to come in for sessions during two days. Upon the basis of this farm home the problems of that immediate community are considered, including the economical arrangement of the kitchen, the proper decoration of the home, and the diet for the farm family.

This has permitted of very general and intimate discussions and detailed consideration of all phases of home life. Thirty-one farm homes were visited. About 150 lectures and demonstrations were given, and it is estimated that 23,000 people were reached through lectures, demonstrations, and correspondence.

Extension schools.—Sixteen extension schools were held in eight different counties. This includes two short courses—one a farmers' week held at the agricultural college and the other a short course held at Eugene. The programs were much of the same general character as those for the farmers' institute except for the fact that more emphasis was placed on demonstration work. They dealt with both agricultural and home-economics subjects. The schools lasted from three to five days. The total attendance was 11,155. During farmers' week 21 conferences were scheduled, which were attended by a total of 1,285 men and women.

Boys' and girls' club work.—Club work was supervised by the State leader and two assistants, working in direct cooperation with two leaders employed by the State department of public instruction. Seven of the county agricultural agents gave definite leadership to the local work in cooperation with the State leader. In the main, the subject-matter direction of the boys' and girls' club projects was looked after by the college cooperative leaders, with the assistance of the county agricultural agents where there were such agents. Outside of this territory most of the organization and follow-up work was conducted by the county superintendents of schools through the teachers.

The State leaders outlined and offered subject-matter instructions in 14 different projects. The work was conducted on the basis of individual efforts and contests, no club groups being organized. The total enrollment in the project work was 13,805, 2,018 actually undertaking the work after enrollment. Eight hundred and forty-seven completed all the work required. This does not represent fairly the project results, as the State leader reports a large number of boys and girls who did all the work with the exception of furnishing final report to the State leader. The total value of products of boys and girls reporting was \$12,909.27. Thirty per cent of the entire enrollment was new membership. About 40 per cent of the results obtained in the work were secured by the unpaid local leaders, the other 60 per cent being secured by county agricultural agents and others who were paid for leadership work in the community. The State leader conducted 47 canning demonstrations, 70 field meetings, about 100 district club fairs and festivals, 90 local club fairs and exhibits, and made exhibits of club work at 27 county fairs and at the State fair. The three State leaders visited personally 450 club plats

and members and distributed as follow-up instruction 164,675 pieces of literature. The total overhead cost reported above includes State, Smith-Lever, and United States Department of Agriculture funds, together with the \$6,000 special appropriation through the department of public instruction. Because of this special appropriation the work is carried on mainly through the public schools of the State, with which the department of agriculture, State college of agriculture, and State department of public instruction are cooperating.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 61 members, reporting 12 acres, producing 771 bushels of corn; potato, 42 members, reporting 10 acres, producing 921 bushels of potatoes; garden, 47 members, reporting 865 square rods, yielding products estimated to be worth \$859.40; sugar beet, 3 members, reporting a production of 10,226 pounds of sugar beet; seed grain, 12 members, reporting 3 acres, yielding products estimated to be worth \$501.28; garden and canning, 66 members, reporting a production of 5,628 quarts of canned foods and 1,033 glasses of jelly; poultry, 65 members, reporting a production of 2,196 chicks and 3,072 dozen eggs; pig, 71 members, reporting products estimated to be worth \$2,422.74; bread, 119 members, reporting 3,925 loaves of bread; sewing, 308 members, reporting products estimated to be worth \$1,597.23; fruit, 1 member, reporting products estimated to be worth \$204.

Demonstrations by means of specialists—Agronomy.—Much of the farming in Oregon is still carried on according to a system introduced there nearly 50 years ago, and it is not harmonious with present conditions and needs. The problems of drainage and of renewing the humus supply of the soil are of serious importance, and very properly chief emphasis has, during the past year, been placed upon the importance of crop rotation. To replace an established cropping system requires time and energy, and notwithstanding the beginning already made this problem will require a great deal of attention for a number of years to come. One hundred lime demonstrations were made in the Malheur district, and there were many demonstrations showing the value of stable manure alone and in combination with various chemicals.

Dairying.—The dairyman employed under this head has worked with the man cooperatively employed by the Dairy Division of the United States Department of Agriculture, and has assisted in the work noted under the project "Dairying" (see p. 324).

Poultry.—Poultry extension was carried on during the year in the form of lectures, demonstrations, exhibits, etc. Particularly during the fiscal year 1915-16 the work was centered on the organi-

zation of egg circles for the immediate purpose of securing better markets for poultry products. Ten egg circles were in operation, with a membership of 300. During the year \$18,000 worth of eggs were shipped by these circles. Practically all of these eggs were sold at a considerable advance over local market prices, and the producers as a whole netted about \$2,800 more on these eggs sold through the associations than would have been received in the local market. During the year more than 300 cockerels and 1,070 settings of eggs were distributed, all of these going from the heavy-laying producers bred at the experiment station.

Animal husbandry.—Special attention was given this year toward the improvement of Oregon horses and the cooperative shipping of live stock. In the development of horse improvement a number of colt shows were put on in different sections of the State where demonstrations in breeding and the care of colts were conducted. Cooperative shipping of live stock was planned to reduce the cost of marketing by the means of community shipments. To this end organizations were perfected in Polk, Yamhill, and Linn Counties, while preliminary work was under way in Marion and Lane Counties.

Horticulture, plant pathology, and entomology.—Work in these three lines has been handled by one extension specialist with the assistance of resident members of the college faculty. Special attention was given to pruning, spraying, and marketing of fruit.

Road building.—A specialist devoted one-third time to this work, having attended 28 meetings, given assistance to 75 people interested in road construction, and promoted a good-roads contest in Benton County, in which 23 of the 29 districts were represented.

OTHER EXTENSION WORK.

County-agent work.—Number of counties with agents June 30, 1915, 12; June 30, 1916, 14; funds expended, \$46,172.88.

The work was organized with a county-agent leader in charge with one assistant. The supervision was interrupted from September, 1915, to January, 1916, following the resignation of the former county-agent leader and the appointment of his successor. During the year there was an effort made to organize agricultural councils composed of delegates from granges and other farmers' organizations. These councils act as an advisory committee in determining the lines of work to be followed and rendering assistance in planning demonstrations and securing attendance at meetings. This type of organization seems to be adapted to Oregon conditions, and it contemplated extending it to each county as rapidly as possible.

The following projects received attention in one or more counties during the year: Marketing, crop rotations, corn growing, introduc-

tion of silos, fertilizer demonstrations, farm-pest extermination, standardization of crop varieties, lime demonstrations, drainage, duty of water and irrigation, growing of clover, orchard pruning, standardization of dairy products, standardization of wool, boys' and girls' club work, farm-management demonstrations, community fairs, and home economics.

Three hundred and seventy-six demonstrations were conducted, at which 56 meetings were held, attended by 1,472 people. Dairying is an important industry in western Oregon and the organization of cow-testing associations was promoted by the agents in that part of the State. Ten associations were organized, in which 3,754 cows were tested, and 439 cows were put under test by individuals outside of the associations. Forty-nine registered bulls and 48 registered cows were secured for farmers and 3 live-stock breeding associations organized; 516 animals were tested for tuberculosis and 1,535 animals vaccinated for blackleg. In Jackson County the agent rendered valuable assistance in connection with orchard smudging to protect fruit from frost. It was found that the thermometers commonly used by farmers were very unreliable, varying as much as 60° F. from a standard instrument. When a standard instrument was at 30°, some of the thermometers would be at 25° and others at 36°. This caused much needless smudging and considerable loss from failing to smudge when the temperature was low. The agent arranged to test thermometers for farmers and also through the cooperation of the United States Weather Bureau to induce growers to protect their thermometers. In connection with this project the agent received 1,334 telephone calls, as many as 149 being in one night. The value of this work to the fruit growers in the county amounted to thousands of dollars. Economic marketing is a subject in which Oregon farmers are vitally interested. In Lane County the agent organized a business market and a system of cooperative hog shipping. An average of a carload of hogs per week has been shipped since organization October, 1915. Other cooperative associations were organized which have done a total business amounting to \$136,100. In connection with the campaign to destroy jack rabbits in Crook County, the agent estimates that more than 100,000 rabbits were killed. Drainage districts including 10,200 acres were organized with the assistance and in most cases at the instigation of the county agents. This land when drained has a valuation of from \$100 to \$150 per acre. It will produce 6 tons of alfalfa hay or 50 bushels of small grain per acre.

Dairying.—Work under this project was conducted in cooperation with the Dairy Division of the United States Department of Agriculture, three men being employed full time for the work. Assistance was also given by resident instructors of the college. Eight cow-

testing associations were organized during the fiscal year and assistance given to nine others. Official testing for advanced registry was encouraged; from 125 to 400 cows were under test during the year, indicating that breeders were giving more attention to high-producing animals. Forty-one silos were built during the year under the direction and supervision of extension representatives. Dairy clubs were started in 15 schools, 11 bulls secured for farmers, and 1 bull association organized. One cooperative creamery was organized in cooperation with the State dairy and food commission. Work is under way to bring the creameries of the State under an association to improve the standard of quality and secure better marketing facilities. The need for the work of such an organization is shown by the difference between eastern market prices and Oregon market prices, which occasionally amounts to 10 cents per pound for butter. To provide better markets for farmers assistance was given two large butter factories, in one of which the daily receipt of milk increased from 3,000 to 7,000 pounds. During the year blue prints were furnished for the building of a creamery and assistance was given in securing equipment and a cheese maker. The plant began operations June 1 with 2,500 pounds of milk daily.

Farm-management demonstrations.—The farm-management demonstration work was taken up in the State shortly after the beginning of the fiscal year, with a farm-management demonstrator in immediate charge. County agents in 5 counties cooperated with the farm-management demonstrator in assisting 366 farmers to summarize and analyze their farm business as a means of determining their net income. After carefully studying this analysis of their business, 53 farmers decided to make some change in the organization of their farms in an effort to make them more profitable. Seventy-six farmers planned to keep simple farm accounts, so that they might know more accurately what income they were receiving from their farms. The accounts also gave them an opportunity to study their business to better advantage.

Organization and markets.—Through the cooperation of the Office of Markets and Rural Organization of the United States Department of Agriculture the bureau of organization and markets was organized at the college. During the first year attention was largely devoted to general lecture work, some surveys, and assistance in perfecting a field organization. During the year ended June 30, 1916, the work was extended, and plans for organization and by-laws were worked out for creameries, cheese factories, farmers' exchanges, and telephone associations. Assistance was also given in perfecting accounting systems for various types of farmers' cooperative organizations. One result of this work has been the federation of the

farmers' union and the Grange into what is known as a farmers' league. This league is centering its efforts upon the improvement of agriculture, better conditions for rural communities, and improved marketing facilities. The section of the extension division doing work under this project has also been a party to the organization work promoted in poultry and horticultural fields.

Instruction by correspondence.—Instruction by correspondence includes the answering by letters, preparation and sending out of mimeographed circulars, making of such analyses of material sent in as are necessary, and handling inquiries made by farmers and others relative to their particular problems. This work is done very largely by members of the resident instructional staff and experiment station staff who are receiving compensation from extension funds for work done. In addition to the circulars and bulletins sent out under this project 12,532 personal letters were written answering direct inquiries.

OUTLOOK.

Through memorandums of understanding and mutual agreement, the extension division is developing the hearty cooperation in extension work of the various departments of the college and the State department of public instruction. A united front is thus presented in meeting the problems as they arise. In the boys' and girls' club work there is a need for efficient local leadership during the summer vacation period. The field of action for club work from the standpoint of practical results is in the garden, on the farm, and in the home. This work when properly coordinated with the school system and provided with adequate local leadership is an important factor in establishing better agricultural practices, but from the standpoint of agricultural-extension work, needs to be kept very practical. The county-agent work is proving its value. The agents are serving as connecting links between the specialists and the farmers. The list of projects for county-agent work shows a wide range of activity with the apparent effort to meet local needs. The dairy work seems particularly promising. Through the organization of cow-testing associations and dairy clubs and the development of better marketing facilities dairying should make the steady progress in the State which its importance demands. Because of the happy cooperative relations existing at the college and throughout the State in extension work, well thought-out and administered extension plans, and favorable State laws, the outlook for the future development of extension work in the State is very satisfactory.

PENNSYLVANIA.

Division of Agricultural Extension Work, Pennsylvania State College,
State College.

M. S. McDOWELL, *Director*.

Organization and administration.—The extension director continues in administrative charge of all work. During the year specialists were placed in charge of extension work in dairying, horticulture, boys' and girls' clubs, agronomy, entomology, poultry, and animal husbandry. Three other specialists, one home-demonstration agent, and seven county agents were added during the year. Teaching and research members of the college faculty have continued to give assistance in extension work.

Publications.—Ten extension publications were issued in addition to the extension bulletin, a four-page circular containing agricultural information, issued monthly and sent, as heretofore, to the mailing list of 40,000. A weekly news letter was sent to all newspapers in the State. The mailing list is being reclassified, and an addressing machine was secured, which greatly facilitates the work.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$46, 893. 75
Smith-Lever, State	36, 893. 75
United States Department of Agriculture, farmers' co- operative demonstration work	11, 437. 95
United States Department of Agriculture, Bureau of Animal Industry	2, 343. 00
College	14, 754. 71
County	2, 095. 61
Total	114, 418. 77

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, extension schools, boys' and girls' club work, dairying, horticulture, farm organizations and fairs. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents and dairying.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents, June 30, 1915, 14; June 30, 1916, 21; funds expended, \$69,399.06.

The supervision of the county-agent work was in charge of a county-agent leader and two assistants. The State provided that the

commissioners of any county could appropriate not to exceed \$1,500 for the support of county-agent work. Farm-bureau associations were organized in many of the counties, having the usual officers in addition to an executive committee of six members, often including the county superintendent of schools. Subcommitteemen were distributed over the county. No membership fee was charged.

The work was comparatively well outlined on a project basis in each county and the agents reported the work by projects to the county-agent leader. The main lines of work projected were: Boys' and girls' club work; corn variety tests; oat-smut control; live-stock improvement, especially by means of cow-testing associations; auto excursions; farm bureau exhibits; live-stock judging contests; and forage crops.

Seven hundred and twenty-nine demonstrations were conducted, at which 174 meetings were held, attended by 3,849 people. The most important demonstrations were those relating to corn variety tests, oat-smut control, cow-testing associations, and live-stock judging. A State-wide project on oat-smut prevention was conducted in 19 counties. Four thousand six hundred pints of formalin were reported used for the control of oat smut. In Lycoming County, reports from 80 farmers show an average of 7 per cent of smut where seed was not treated and only 1.1 per cent where seed was treated. The increased yield, valued at \$2.25 per acre on 3,300 acres, was worth \$7,425. The seed-wheat-treating demonstration in Lancaster County resulted in 50,000 bushels of seed wheat being treated for smut during the past year. In one of the potato-spraying demonstrations of Lackawanna County three rows in the middle of the field were left unsprayed. These rows died of blight about three weeks before the first killing frost. The sprayed part of the field yielded at the rate of 23.4 bushels more per acre than the unsprayed part. The total cost of spraying was \$9.41 per acre. Attention was given to the subject of dairying, including the organization of 8 cow-testing associations, bringing 3,110 cows under test, which resulted in the elimination of more than 50 unprofitable cows.

Home economics.—Two persons gave full time to home-economics extension, reaching 15,493 women by means of lectures, demonstrations, and visits. In one county a woman county agent was employed for three months, and results were so satisfactory that the people of the county wish the continuance of the work.

Extension schools.—One extension school was conducted at Greenville, Mercer County, for a period of four days, the program covering both home economics and agricultural subjects, special attention being given to soils, crops, and dairying. Plans for the school were made in consultation with the county agent, and the lectures were given by the agents from Bradford and Butler Counties and 10

members of the school of agriculture faculty. This was the fifth school held here and the people showed satisfactory interest in the work. Four hundred and fifty men and women were present. Under the heading "Extension schools" farmers' week was conducted at the college, at which demonstrations in various lines were featured. A special feature of the week was a program for boys and girls.

Boys' and girls' club work.—Club work was in charge of one State leader, who directed the work in close cooperation with the county agricultural agents, county superintendents of schools, and the growers' and breeders' association of the State. The work was financed by Smith-Lever funds and funds from the State college of agriculture. A number of the county agents gave helpful follow-up instruction. In part of the territory the work was organized by means of club groups with local volunteer leaders in charge. The State leader cooperated with county agents and county superintendents in furnishing printed instructions, visiting club plants and club members, holding field meetings, conducting demonstrations, etc. The best results were secured in counties where the county agents gave definite leadership during the vacation period. In these counties it was possible to perfect the organizations, secure volunteer leadership, and get the club members to do the required work. The State department of education through its bureau of vocational education cooperated.

Seed-corn campaigns conducted resulted in increased yields and an appreciation of better standards of seed corn. The State club leader assisted county agricultural agents in special campaigns of instruction, such as seed-corn testing, seed selection, and dairy testing. Demonstration teams and exhibits were sent to the Eastern States Exposition at Springfield, Mass.; field meetings were held; 40 demonstrations in the interest of exhibits and fairs were conducted; the boys and girls were assisted in picking out good seed and good stock; and special instruction was given in the various phases of growing, feeding, etc. Judging contests were held at county fairs. Several boys' and girls' hikes were organized for the purpose of studying different farms and farming methods of the communities, visiting the best cornfields, certified milk plants, and alfalfa fields. Reports show that 5,290 boys and girls enrolled in the clubs. In addition, 800 were given special instruction in stock judging at county fairs, 169 meetings were held by the State leader, and 62 farms visited. A total of 20,200 were reached by lectures, demonstrations and otherwise.

Dairying.—This work consisted of giving demonstrations and instruction to individuals and to groups of farmers in feeding dairy cows, raising calves, the improvement of herds through the use of

pure-bred sires, the elimination of unprofitable cows, the selection of better animals, the construction of silos, dairy barns, and dairy houses; the making of dairy records, the organization and operation of cow testing, breeding, and bull associations; improved methods of marketing dairy products, together with such other forms of dairy work as would aid and develop the dairy industry of the State. Three men, giving full time, occasionally assisted by members of the department of dairy husbandry, attended 169 meetings, gave 216 lectures and demonstrations. They visited 155 farms, computed 107 balanced rations, assisted in organizing 2 bull associations, 8 cow-testing associations, and in reorganizing 7 cow-testing associations. Thirty creameries, having 2,053 patrons, were visited. The total number of people reached in the work of this project was 13,000. This work was conducted in cooperation with the dairy division of the United States Department of Agriculture.

Horticulture.—Organized extension work in horticulture was attempted this year for the first time and was confined largely to tree fruits. Spraying, pruning, cultural methods, grading, and marketing were the chief problems taken up. The latter three were considered the more important phases of the work. During the year 95 meetings were attended by 4,000 farmers, 330 farmers were assisted personally, 84 farms were visited, and 75 days were spent with county agents.

Farm organization.—The work of this project was done in answer to calls from county agents and farmers for advice concerning crops, live stock, drainage, soil improvement, marketing, and other agricultural subjects. In one county work was done with a group of farmers in an effort to get them to consider their farm problems from the standpoint of the community. A few farmers were induced to keep accurate farm accounts.

Fair exhibits.—Fifteen fairs were visited during August, September, and October, only one of which had previously had an exhibit from the college. The material used consisted of (1) illustrations showing the results of the work of the experiment station and its application to farm practices, and (2) an exhibit of canned vegetables, charts, books, and information on textiles. The extension director estimated that 200,000 people visited the exhibits.

OUTLOOK.

The organization has been strengthened by the addition to the extension staff of several specialists and seven county agents. A considerable further increase in county-agent work is contemplated. The success of the organized State-wide project for oat-smut control illustrates the importance of united effort with efficient leadership

for a definite purpose. The policy of devoting the annual increase of Smith-Lever funds largely to the support of county-agent work will result in establishing a corps of trained extension representatives over the State in close touch with the people and with that intimate knowledge of their needs which will enable the agents wisely to direct all extension activities in their counties. The success of the extension school which was held at the county seat in Mercer County suggests the wisdom of the more general adoption of the extension-school method of teaching. In the boys' and girls' club work the cooperation of the State department of education through its bureau of vocational education and the active help given to the State club leader by county agents resulted in reaching and instructing a large number of adults as well as of boys and girls. In some counties the agents made club work one of the leading activities, with the result that a general interest was aroused and other lines of extension work advanced as well. The dairy work conducted in cooperation with the Dairy Division of the United States Department of Agriculture rendered timely aid to one of the greatest agricultural industries of the State. Instruction and demonstrations were given in a wide range of subjects vital to the success of dairying. However, the importance of the industry, the number of people who need assistance, the rapidly changing conditions as affecting labor, price of food, and markets for the product, and the direct bearing of this work to the welfare of all the people will require the continued liberal support of this project and the cooperation of all proper agencies for its furtherance.

The limiting of horticultural instruction to tree fruits and emphasizing certain features of the work is commendable. In addition to the help given to fruit growers through demonstrations and lectures and personal visits, much time was devoted to the county agents to instruct them in proper methods of handling their fruit problems and in making their demonstrations effective.

RHODE ISLAND.

Division of Extension Service, Rhode Island State College, *Kingston*.

HOWARD EDWARDS, *Acting Extension Director*; A. E. STENE, *Director* (on leave from March, 1916).

Organization and administration.—The work of the extension division continued along lines similar to those followed last year. The director of extension was on leave after March, 1916, and Howard Edwards, president of the college, was acting director and county-agent leader. Advisory committees on subject matter were appointed from the resident teaching and experiment station staff to

assist extension workers at conferences and at such time as advice may be needed. During the year several changes have taken place in the extension staff. In April the county-agent leader resigned to accept the position as county agent in Providence and Bristol Counties. The instructor in home economics resigned June 30, 1916, and another woman was appointed in her place. Cooperative relations were maintained with various associations and clubs representing the agricultural and home-economics interests and also with the State department of education.

Publications.—One bulletin, Feeding of Turkeys, was printed with Smith-Lever funds and distributed to a mailing list of 5,000 names. A news letter is issued as matter is available and sent to 50 Rhode Island papers.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$10, 218. 31
Smith-Lever, State	218. 31
United States Department of Agriculture, farmers' cooperative demonstration work.....	2, 728. 65
United States Department of Agriculture, Bureau of Animal Industry.....	400. 00
State appropriations.....	2, 000. 00
College	1, 366. 87
County.....	2, 000. 00
Other sources within the State.....	2, 550. 00
Total.....	21, 482. 14

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, boys' and girls' club work, poultry husbandry, and agronomy. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents and boys' and girls' club work.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Two agents were appointed during the year, one in the northern district, comprising the counties of Providence and Bristol, and one in the southern district, comprising the counties of Washington and Kent. The remaining county of Newport has no agent. Funds expended, \$7,087.35.

The former county-agent leader was appointed as county agent in the northern district, and the president of the college acted as county-agent leader. Farm bureaus were organized in each of the districts

and have a membership of 391. Four farmers' clubs were organized by the agents during the year, with a membership of 119.

The work is not on a definite project basis, though chief attention was devoted to the following subjects: Top-dressing meadows, improvement of silage-corn varieties, seeding clover, pruning and spraying orchards, farm poultry, cooperative dairying, introduction of soy beans, and silo construction.

Sixty definite demonstrations were conducted, at which 39 meetings were held, attended by 575 people. The demonstrations were principally in connection with the work in pruning and spraying orchards and live-stock judging.

The farm bureau in the southern district purchased a spraying outfit, which was used on 3,000 trees, mostly in small orchards whose owners did not feel justified in purchasing an individual outfit. Pruning demonstrations were conducted in the same orchards.

An increased profit of \$10 per acre was shown as a result of top-dressing meadows with commercial fertilizers.

Dairying is an important project on most Rhode Island farms. Forty-six silos, mostly of the small wooden type, were constructed as a result of the work of the agents, and demonstrations conducted to show the superiority of certain varieties of corn for silage.

In the northern district a cooperative dairy association was organized for collecting, processing, and delivering milk to the Providence market.

The agents conducted farm-management demonstrations by assisting 51 dairy farms in summarizing and analyzing their farm business. Seven young men made arrangements to keep farm accounts on their fathers' farms so that they could study the farm business to better advantage. The agents also participated in boys' and girls' club work.

Home economics.—Extension work in home economics was interrupted to some extent during the year by the resignation of the leader in charge of the project and the appointment of a new leader.

Through the combined service of these two workers 60 lectures with demonstrations were given, with a total attendance of 1,853 women and girls.

Seventeen home-economics extension schools were conducted during the year. Each school was held one day each week for a period of 8 or 10 weeks, and lectures and demonstrations on the following subjects were given: The making of practical garments; a study of textile fibers; the removal of stains; sewing-machine attachments; emergencies and home nursing; arrangement of kitchen to save energy; home decoration; foods—bread, eggs, fruits, meats, salads, milk, vegetables, deserts, left-overs; and table service.

A feature of the college exhibit at the State fair was the two types of kitchens arranged by the home-economics extension leader, showing the contrast between good and poor kitchen arrangement.

There were 14 home-economic clubs in the State, with a total membership of 255. Eleven of these clubs were organized during the year.

Boys' and girls' club work.—Club work was supervised by one State leader and two part-time assistants. A portion of the club enrollment of the State was organized into club groups, with a local paid or volunteer leader in charge of the club group. Printed follow-up instructions were furnished, field meetings held, personal visits to club plats given by both paid and volunteer leaders, and other forms of encouragement used in connection with the year's work.

Twelve subject-matter club projects in agriculture and home economics were outlined for the 110 clubs within the State. A total of 3,184 boys and girls undertook the work at the beginning of the year; out of this number 2,954 actually started the projects and the club activities. At the end of the year 1,655 had completed all the work required by the State leaders. Fifty per cent of the enrollment for the year was new membership; 80 per cent of the enrollment within the State was secured by the paid local leaders; 25 per cent of the results was secured by the unpaid local leaders.

The State leader conducted 16 canning demonstrations, with a total attendance of 3,700; 100 field demonstrations; 6 club fairs and festivals; 8 local fairs; 3 county fairs; and 2 club exhibits at State meetings and fairs.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 1 club, 5 members, reporting 1 acre, producing 40 bushels of corn and 431 dozen ears of sweet corn (yield consisted of 40 bushels of field and pop corn and 431 dozen ears of sweet corn. Pop corn sold at \$2 per bushel; 33 bushels of field corn were sold at an average of \$1.50 per bushel; sweet corn sold at 20 cents per dozen; stover was sold at \$15); potato, 1 club, 1 member, reporting one-fourth acre, producing 30 bushels of potatoes; garden, 25 clubs, 205 members, reporting 12 acres, yielding products estimated to be worth \$3,294.61; allotment garden, 25 clubs, 769 members, reporting products estimated to be worth \$4,413; flower, 10 clubs, 221 members, reporting products estimated to be worth \$116.76 canning, 20 clubs, 263 members, reporting 1,609½ quarts canned goods; poultry, 14 clubs, 157 members, reporting a production of 3,996 dozen eggs and 671 chicks; sheep, 1 member, reporting a production of 7 sheep; pig, 5 clubs, 2 members, reporting a production of 638 pounds of pork; bread, 5 clubs, 4 members, reporting a production of 400 loaves

of bread; sewing, 3 clubs, 23 members, reporting a production of 53 pieces of sewing; cooking, 5 clubs, 4 members, reporting a production of 200 loaves of bread and 200 cakes.

Poultry.—A home-reading course of 10 lessons was prepared and 42 persons took the course. A poultry bulletin for boys and girls and eight extension news letters were written. Twenty-nine poultry lectures were given before granges, poultry associations, and clubs for adults, and 64 lectures and demonstrations were given to boys, and girls' poultry clubs. Six judging demonstrations were given at fairs. Twelve lessons in poultry judging were given to poultry-club boys, and 190 hens tested for white diarrhea.

Agronomy.—Four demonstrations were also made in the top-dressing of meadows, in three of which 150 pounds of nitrate of soda and 200 pounds acid phosphate were used; in one 300 pounds of common salt were used. The hay grown on these demonstrations was weighed in the presence of the county agent and farmers, the most striking increase being made where nitrate of soda and acid phosphate were used.

OUTLOOK.

Changes in administration during the year interfered somewhat with continuity of work. Nevertheless with the assistance rendered by the advisory committees from college and experiment station departments, considerable progress was made in all lines. Four of the five counties of the State are now served by agents. Various important lines of work were undertaken by the agents in cooperation with farm clubs and associations.

Results were shown in silo construction and improved dairy conditions. Demonstrations in orchard management were a prominent feature of the work.

In the club work a fair percentage of those enrolled completed all required duties. A productive field for this work was found in the garden and canning and in the poultry work. Cooperation by school teachers and superintendents in the development of club work has resulted in increased efficiency in the work, and benefited the schools as well by bringing them into closer relationship with the people whom they serve.

SOUTH DAKOTA.

Division of Extension, South Dakota State College of Agriculture and
Mechanic Arts, Brookings.

G. W. RANDLETT, *Director.*

Organization and administration.—By an act of the general assembly which took effect July 1, 1915, legislative provision was made for

the organization and administration of cooperative extension work between the State college of agriculture and mechanic arts and the United States Department of Agriculture. The law states that it shall be the duty of the regents to appoint a State director, State leader, and such others as may be deemed necessary to conduct this cooperative extension work. The State director and State leader are by law made members of the faculty of the State college of agriculture, and they have general supervision over the "Better-farming schools" (extension schools) and cooperative agricultural extension work under the provision of the Smith-Lever Act, subject to the direction of the president of the college and the United States Department of Agriculture. The same law provides that the county agricultural agent shall devote his entire time to agricultural extension and allied branches, including home economics, as outlined by the county association, the State director, and the United States Department of Agriculture.

The president of the agricultural college served as acting director until December 13, 1915, when the county-agent leader became extension director. During the year there was considerable change in the organization and relations of the extension service. County-agent work which had been organized by districts was reorganized by counties. One district agent resigned, another became leader of farm-management demonstrations, and a third became the leader of animal-husbandry extension work. Specialists were employed in agricultural engineering and horticulture. The leader in charge of extension schools resigned June 30, 1916.

Under the new organization the seven specialists are responsible for subject matter to the respective departments in the agricultural college and experiment station, while being administratively responsible to the extension director. The county agricultural associations supporting county-agent work select the agents subject to the approval of the extension director. Closer relations were established between the State department of education and the extension division for conducting boys' and girls' club work. The State live-stock association, the State poultry association, and the corn and grain growers' association are closely allied with the extension division of the college. Two of these associations have secretaries who are members of the faculty.

The law which provides for the organization of extension work eliminates farmers' institutes as a feature of extension work.

Publications.—During the year one bulletin entitled "Organizing Calf Feeding Clubs" was published on Smith-Lever funds. No extension division mailing list was maintained. Most of the publications of the extension division were sent out in mimeograph form to be distributed through county agents, specialists, and club leaders.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$16, 166. 89
Smith-Lever, State.....	6, 166. 89
United States Department of Agriculture, farmers' co-operative demonstration work.....	5, 618. 25
United States Department of Agriculture, Bureau of Animal Industry.....	1, 550. 00
State appropriations.....	17, 729. 14
County.....	11, 671. 56
Total.....	58, 902. 73

Smith-Lever funds were used in support of the following projects: Administration, county-agent work, extension schools, boys' and girls' club work, live-stock improvement, dairy-extension work, horticulture, sanitary engineering, and farm management. Funds from the United States Department of Agriculture were used in the support of the following projects: County-agent work, boys' and girls' club work, and dairying.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of county agents at work June 30, 1915, 4; June 30, 1916, 11; funds expended, \$30,367.56.

All counties in the State cooperating in the employment of agents have a county agricultural extension association incorporated in accordance with the laws of the State. These associations were formed primarily for the purpose of securing financial support for county-agent work. The agents organized 56 hog-cholera-control clubs, breeders' associations, and other organizations, with which they work.

The following organized lines of work received attention in one or more counties during the year: Live-stock improvement, corn, alfalfa, farm management, live-stock-disease control, boys' and girls' club work. A number of the agents had their plans written in project form.

One thousand three hundred and seventy-four demonstrations were conducted, at which 229 demonstration meetings were held, with an attendance of 3,292. The demonstrations related mainly to forage crops, live-stock diseases, cereal crops, and boys' and girls' club work. Much work was done in the matter of instructing farmers in the selection of seed corn and testing seed corn for germination, and in growing silage. A total of 3,340 acres of corn was grown under the agents' directions or at their suggestions. Wheat also received con-

siderable attention, a total of 1,775 acres being grown under the agents' direction or at their suggestion.

The introduction of alfalfa received special attention on the part of most of the agents. In Spink County the agent was instrumental in having brought in 11,350 pounds of hardy alfalfa seed, which was distributed to 168 farmers; a total of 1,135 acres was grown under the agents' direction, and a total of 3,515 acres was reported by all the agents as being grown under their direction.

The introduction of sweet clover also received attention. In one county 23 men purchased 1,510 pounds of sweet-clover seed through their association at the direction of the county agents and sowed a total of 151 acres.

In Kingsbury County in 1915, 1,080 head of hogs were lost with hog cholera and 3,430 were reported to have been treated to prevent the disease. With the beginning of 1916 the county agent conducted an antihog-cholera campaign consisting of a two-day short course held in each township in the county, during which a township anti-hog-cholera club was organized. In addition to this, 45 demonstrations were held on farms, and 12 demonstration meetings, with an attendance of 231, were held. Sixteen outbreaks were reported, with the loss of 154 head; 701 head were vaccinated by the agent and 370 by veterinaries. These very excellent results were largely due to the promptness with which the farmers reported outbreaks and took steps to prevent the disease. A total of 8,112 hogs were vaccinated in the State to prevent cholera by the agents or on their suggestions.

Extension schools.—Institutes passed out of legal existence July 1, 1915, and the State funds formerly appropriated to conduct farmers' institutes were given to the college of agriculture to conduct extension work. A law provides that at least one four-day extension school be held once a year in each county not having a county agent. In each four-day school two men and one woman were employed, and the course as given was selected from one of the following groups: (1) Animal husbandry, horticulture, and home economics; (2) animal diseases, agricultural engineering, and home economics; and (3) animal husbandry, agronomy, and home economics. The choice of courses is left to the persons desiring the school. The instruction was principally by means of lectures; some demonstration work was given in the selecting of seed corn, the preparing of potatoes for planting, and animal judging. In the home-economics section of the schools the instruction was nearly equally divided between lectures and demonstrations. The demonstrations included the cooking of meats and of vegetables having strong odors; the use of leavening agencies in the making of wheat and quick breads; and the working over and serving of "left overs." Exhibits of grains, fruits, and vegetables for premiums offered by local business men were usually

a feature of the extension schools. Two men who gave instruction in these schools were engaged during the growing season in district county-agent work. Other members of the extension-school force were employed especially for this work. One and two day meetings were also conducted, at which the character of the work resembled that done in the regular four-day school. No membership fees were charged at the schools or meetings. The law permits the county commissioners to appropriate not to exceed \$300 for the local support of these schools. The local expenses were paid from these funds or from special collections or donations. Schools and meetings were conducted from September 1 to March 20. During the year there were 46 one-day extension schools, 43 two-day meetings, and 16 one-day meetings. The total attendance was 41,419. Under the present law the funds for conducting extension schools will automatically decrease as the number of county agents increase.

Boys' and girls' club work.—Club work was conducted by one State leader.

A total of nine agricultural and home-economics projects were undertaken and 150 clubs were organized. The total membership at the beginning of the year was 2,645. Out of this number, 1,263 carried on the work throughout the season. The total value of the products produced by club members was \$13,051.68. Seventy-five per cent of the total enrollment was new membership. All the results by local groups were secured by the local volunteer leaders, supervised and directed by the State leader in charge. The State leader during the year conducted 18 canning demonstrations, attended by 225 members and 307 visitors; 8 local exhibits and 2 leader-training schools, and assisted in the direction of the club exhibits at 12 fairs, including the State fair, and visited 36 plats. Outside of letters from State leader to club members, no definite follow-up instructions were prepared and furnished to the membership.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 12 clubs, 225 members, reporting 225 acres, producing 6,112 bushels of corn; potato, 7 clubs, 176 members, reporting 22 acres, producing 2,822 bushels of potatoes; garden, 2 clubs, 59 members, reporting 125 square rods, yielding products estimated to be worth \$472; garden and canning, 2 clubs, 8 members, reporting a production of 140 quarts of canned goods and fresh vegetables, estimated to be worth \$30; poultry, 22 clubs, 218 members, reporting a production of 2,616 chicks; pig, 12 clubs, 140 members, reporting a production of 16,018 pounds of pork; bread, 6 clubs, 160 members, reporting a production of 480 loaves of bread; sewing, 8 clubs, 260 members, reporting a production of 1,300 pieces of sewing; handicraft, 1 club, 17 members, reporting a production of 39 articles.

Live-stock improvement.—During the three months in which work was done under this project plans were made and work started to improve live stock by means of better breeding and feeding. To secure better live stock, the farmers were encouraged to use pure-bred sires. A "better-stallion day" was inaugurated and 90 exhibits of stallions were made at the beginning of the breeding season to interest farmers in better types of horses.

Dairying.—The specialist in creamery-extension work employed cooperatively with the Dairy Division of the United States Department of Agriculture visited 20 creameries, giving assistance to butter makers in pasteurization, arrangement of creamery equipment, and in butter making. One cow-testing association was reorganized, and two new associations were formed. The specialist made a total of 378 personal calls and received 697 letters asking for instruction along dairy lines.

Horticulture.—Four lines of work were developed: Home vegetable gardens, the home fruit orchard, windbreaks, and home ornamentation. The work under this project extended through only three months. During that time 92 farms were visited, and on 22 of them demonstrations were held, with a total attendance of 133 persons. These demonstrations included pruning, grafting, spraying, planting of ornamental trees, planning of vegetable gardens, and the planning and planting of windbreaks. Special attention was given to planning farmers' gardens which will provide vegetables for summer as well as for winter use. Mimeographed plans were prepared and distributed giving suggestions as to the planting of home gardens and the proper location of trees and shrubbery in ornamental plantings. Plans for ornamental plantings were carried out by eight small cities, four at rural homes and four at schools. Twenty-six lectures were given on horticultural subjects to audiences totaling 880 persons.

In order to bring the producer and the purchaser of fruit and vegetables in communication with one another, an information bureau was established. It is estimated that 40 per cent of the leader's time is spent with the county agents.

Agricultural engineering.—Four lines of work were developed: (1) Concrete construction, which included testing and grading of gravel and mixing and pouring of concrete; (2) construction of farm buildings, including floor plans, framing of barns, ventilating systems, and the arrangement of farm buildings; (3) land drainage; and (4) farm sanitation, which included sewage disposal, water supply, heating, and lighting. This work was carried on in eight counties, six of which had county agents. During three months' work under this project assistance was given in remodeling or constructing 15 farm buildings, 4 silos, 8 drainage systems, 3 sewage-

disposal drains and septic tanks, and 2 improvements in means for water supply.

The leader of this project prepared multigraphed pamphlets on hog houses, ventilation, and drainage, each of which consisted of four to six pages. These were used in answering mail inquiries. Two schools for boys of one week each were held, at one of which 25 attended and at the other 50. The boys were taught the mixing of concrete, the making of concrete molds, the making of concrete hog troughs, feeding floors, fence posts, and sidewalk building.

Farm-management demonstrations.—Demonstrations were only recently started in South Dakota, and at the end of the fiscal year, and although the work had been in progress only about three months the county agents in four counties had cooperated with the farm-management demonstrator in assisting 148 farmers to summarize and analyze their farm business as a basis for deciding how to make their farms more profitable.

Fifty-one of these farmers asked for and were given assistance in starting a simple farm-account book which at the end of the year could be easily summarized. Later a special account book was prepared, so that in the future many more farmers could be encouraged to keep such accounts and study their business to better advantage.

OUTLOOK.

The reorganization of the extension division with a director in charge, who devotes his entire time to the work, has greatly strengthened the work. The county-agent work has made substantial progress, and the support of the county associations, which are definitely recognized by State law, should make for permanency of the work. Progress has been made in the development of county-agent projects, but there is need for a State leader who shall give his whole time to this rapidly developing work.

Instruction through extension schools has supplanted farmers' institutes. These schools with well-planned courses continuing for the most part for four days, should, with adequate follow-up work, prove of practical value.

UTAH.

Division of Agricultural Extension, Agricultural College of Utah, Logan.

E. G. PETERSON, *Director*.

[JOHN T. CAINE, III, apponited Sept. 1, 1916.]

Organization and administration.—For the fiscal year 1915-16 the extension organization consisted of the director; an assistant director, who was also live-stock specialist and in charge of extension schools and farmers' institutes, and had direct supervision of the work of the specialists in dairying, dry farming, irrigation and drainage, farm-

management demonstrations, and veterinary science, the last giving about one-seventh of his time to extension work; a county-agent leader, in charge of nine county agents; a club leader, with two assistants; a State home-demonstration leader, with two county demonstrators; and a leader of correspondence-study work, who had occasional assistance from other members of the extension staff and of the teaching staff at the college. The general plan of administration was essentially the same as during the previous year.

Publications.—During the year 14 extension circulars were issued and 8 four-page leaflets.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$12,436.74
Smith-Lever, State.....	2,436.74
United States Department of Agriculture, farmers' cooperative demonstration work.....	8,840.89
United States Department of Agriculture, Bureau of Animal Industry.....	1,544.00
State appropriations.....	21,502.98
County.....	4,185.00
Other sources within the State.....	1,511.00
United States Department of Agriculture, Office of Markets, and Rural Organization.....	642.75
Total.....	53,100.10

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, club work, and farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, club work, dairying, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of county agents June 30, 1915, 7; June 30, 1916, 8. The work of each of two agents covered two adjacent counties; thus 10 counties were served by 8 men. The eleventh county had been organized and an agent appointed to begin work July 1, 1916. Funds expended, \$18,447.40.

The work was continued, as last year, with a county-agent leader in charge. During the year five counties formed farm-bureau organizations, which were composed of local groups of farmers known as "locals," and in some cases with one or two affiliated organizations such as commercial clubs, bankers' associations, and school boards. A special effort was made during the past year to develop the work

of the farm bureaus and get a much stronger organization in the support of county-agent work.

The main lines of the county-agent work are written in project form and consist of: (1) Potato improvement, (2) drainage and irrigation, (3) grasshopper control, (4) oat-smut control, (5) alfalfa, (6) animal-disease control, including blackleg and hog cholera, and (7) weed eradication. Owing to the great diversity of climatic and soil conditions in the State many minor projects have developed to meet the needs of certain localities. The plan is to put the work in the State on a definite project basis.

A total of 615 demonstrations were conducted, at which 171 demonstration meetings were held, with an attendance of 4,935. Five-sixths of the demonstrations related to horticulture, cereals, and the control of plant diseases and insect pests. Some demonstrations were also held on live stock, rural engineering, forage crops, and weed eradication.

In one county an oat-smut-control campaign was conducted in which every district was visited and local branches of the farm bureau organized and committeemen appointed. Demonstrations were conducted by 107 farmers in the 20 districts in the county, 50 of whom arranged check plats to determine the value of the treatment of seed oats for smut. Fourteen farms where untreated seed was used were chosen as checks for the demonstrations on the 57 farms having no check plats. On the 50 farms with check plats, 333 acres of oats grown with treated seed contained but nine-tenths of one per cent smut, while the untreated check plats had 18 per cent of smut. The resultant increased yield was 2,137 bushels. On 57 farms having no check plats 224 acres were grown with 1 per cent smut, while the 14 farms not treated showed 28 per cent smut; the resultant increased yield on the treated area was 5,184 bushels. Ten per cent of the farmers in the county treated their seed oats for smut previous to the campaign; as a result of the campaign the number was increased to 75 per cent. This effected a gain to the county of \$22,425.

In Weber County a weed-eradication campaign was conducted to control burdock, cocklebur, bur thistle, and Canada thistle. There were 2,757 owners of farms in the 20 districts where the campaign was conducted, with a total of 114,278 acres; and the campaign resulted in clearing 70,574 acres, or 61 per cent of the area, of these four weeds, none being allowed to go to seed. On the 455 miles of county roads, 330 miles, or 73 per cent, were cleared; of the 55 miles of railroad, 47 miles, or 89 per cent, were cleared; and of the 118 miles of irrigation canals, 51 miles, or 43 per cent, were cleared of these weeds. The Canada thistle was almost completely eradicated from the county.

Home economics.—The work for the past year was carried on by a leader and two assistants, who organized 10 home-economics clubs. These, with the 60 previously formed, have a membership of 3,000. The accomplishments of the year included the visiting of 58 towns, 481 homes, giving 52 demonstrations, and holding 85 meetings, at which the total attendance was 1,299. The two assistants worked as home-demonstration agents in two different counties, remaining long enough in each to study the general situation and to become acquainted with a considerable number of farm women. At the end of the year one of these women was stationed permanently in Millard County, where her work is definitely a county home-demonstration project. The work of the other woman was confined to Boxelder County and to a small area in Salt Lake County, where the opportunity seemed to be especially favorable for doing a particular type of demonstration work. This change from the more general work of giving lectures and demonstrations at extension schools, institutes, and upon invitation before home-economics associations or women's clubs was the important advance of the year. The work of the home-economics associations has become increasingly definite. The associations give a certain unity to the work and are developing in the women of the State a sense of their own responsibility to home-economics extension as presented by the college.

Boys' and girls' club work.—Club work was directed by one State leader in charge and two assistants working out from the college. During the past year 10 cooperative district or county leaders were employed, who gave part of the year toward direction and supervision of the work. Most of these county and district leaders are the agricultural and home-economics teachers of the public schools.

State leaders outlined 13 subject-matter projects in home economics and agriculture for the study and direction of club members. Most of the work was conducted by means of a total of 139 club groups, containing a total enrollment of 3,790; out of this number, 2,514 completed all work required of them. The total value of the products of those completing was \$88,369.39. Sixty-eight per cent of the total enrollment were members of club work in 1915; 90 per cent of the total enrollment was secured by the paid local leaders within the State, while 98 per cent of the total results secured for the year was secured by these same local leaders. The State leaders working out from the college conducted 42 canning demonstrations, held 51 field meetings, 35 district fairs and festivals for the club work, 37 training schools for local leaders, exhibited club products at 16 local fairs, 5 county fairs, 4 district fairs, and also at the State fair. The State leaders visited 101 club plats and members during the year and furnished a total of 20,600 circulars and pieces of printed follow-up instruction for the membership.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Potato, 6 clubs, 142 members, reporting 92 acres, producing 37,766 bushels of potatoes; garden, 9 clubs, 414 members, reporting 5,600 square rods, yielding products estimated to be worth \$22,297.14; sugar beet, 16 clubs, 172 members, reporting 98.5 acres, producing 4,069,400 pounds of sugar beet; garden and canning, 12 clubs, 92 members, reporting a production of 2,480 quarts of canned goods; poultry, 20 clubs, 300 members, reporting a production of 9,340 chicks; flower, 10 clubs, 200 members, reporting a production estimated to be worth \$200; pig, 170 members, reporting a production of 29,058 pounds of pork; bread, 16 clubs, 196 members, reporting a production of 15,000 loaves of bread; sewing, 24 clubs, 526 members, reporting a production of 3,232 articles; handicraft, 3 clubs, 83 members, reporting a production of 774 articles; home economics, 3 clubs, 102 members, reporting the preparation of 30 meals per member; cow testing, 2 clubs, 58 members, reporting a production estimated to be worth \$13,078.08; better seed, 3 clubs, 63 members, reporting a production estimated to be worth \$243.18.

Farm-management demonstrations.—Demonstrations were continued during the year in each of the six counties in which they were started a year ago. Of the 379 farmers who cooperated the first year 256 cooperated this past year and were again assisted in summarizing and analyzing their business. After carefully studying this analysis of their business 163 farmers planned some change in the operation of their farms as a means of making them more profitable. In these counties 338 farmers started simple farm accounts so that they might determine their labor incomes more accurately and study the whole farm business more intelligently. By means of 37 farmers' meetings held in the counties within the year the work was presented to other farmers who were given an opportunity to receive assistance if they desired.

OTHER EXTENSION WORK.

Extension schools and farmers' institutes.—During the year 14 extension schools were held. The attendance was 16,073 men and 4,403 women. In these schools agricultural and home-economics programs were rendered separately through from three to five days. The lecture-demonstration method of teaching was used. In some communities these schools took the place of the one and two day institutes. Nine hundred and two farmers' institutes were held, having a total attendance of 110,538. The demonstrations used in the institute work were of a more practical nature than in previous years. Twenty-one members of the extension staff gave lectures and demonstrations. There were also 72 speakers from outside the State

agricultural college. Farmers' institutes were financed by a State appropriation of \$10,000.

Dairying.—As a result of the work in this project dairy conditions in Utah are improving and a normal healthy development can be noted. The dairy specialist gave assistance in the building of 125 silos, 2 barns, and 1 milk house; visited 28 creameries and assisted in the organization of 1 creamery; addressed 120 meetings, with a total attendance of 11,577; and assisted in the purchase of 28 head of cattle. This work was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Demonstrations in dry farming.—The dry-farming specialist has given instruction and demonstrations in the economic way of developing a homestead into a paying farm. This has included the clearing of land, the choice of implements and stock, the methods of planting and cultivating crops, and also the best use of crops after they have been grown. In Box Elder County a 640-acre farm is being managed to demonstrate the best method of organizing and conducting a large dry farm. The specialist has in charge in a similar way eight other farms in six counties. Guidance is also given to intending farm purchasers from within and without the State in the selection of suitable farms, it being felt that if the State fails to furnish such information to the prospective settler, nothing the college can do afterwards will be of much help to those settlers on unsuitable land. In addition to this, many such inquiries have been answered by letter and personal visits have been made where such assistance was requested.

Correspondence courses.—Work in correspondence courses may be divided into three lines: (1) Credit study course, leading to college or high-school credit; (2) reading courses in agriculture and home economics; and (3) extension classes conducted in various institutions by members of the college faculty. Seventy-six courses were given in class 1; 44 courses in agriculture and 11 courses in home-economics in class 2. Eleven classes have been organized to take up work under 3. The total registration in all courses for the year was 415.

Specialists.—Extension specialists were at work during the past year in the following lines of activities: Live stock, veterinary science, dry farming, dairying, farm-management demonstrations, and irrigation and drainage. The men in charge of the last three lines of work were chiefly employed by various bureaus of the United States Department of Agriculture and the extension division of the Utah agricultural college. The results of the activities of these specialists are reported under projects noted above. The work was closely coordinated with the activities of county agents and boys' and girls' club work. The irrigation specialist gives one-fourth of

his time to extension work, giving farmers assistance in the use of water for irrigation purposes. The rest of his time is devoted to research work for the United States Department of Agriculture and the Utah Experiment Station.

OUTLOOK.

The former director of extension became president of the college and the assistant director was made director.

The county-agent work has been strengthened through the organization of farm-bureau associations and the adoption of definite projects for work. The oat smut and the weed eradication campaigns were particularly successful and illustrate the force of the demonstration method of instruction. The home-economics workers have developed the home-demonstration agent methods with such success that the two assistants have been removed from State-wide work and located in restricted areas, where more intensive work is being done. Of the total enrollment in boys' and girls' club work a large percentage completed all work required and made a satisfactory return in value of products. A majority of the enrollment for the year was continued from 1915. The importance of thorough organization and of paid local leadership was clearly demonstrated.

VERMONT.

Agricultural Extension Service, College of Agriculture, University of Vermont, *Burlington*.

THOMAS BRADLEE, *Director*.

Organization and administration.—The service is organized as a distinct department of the college of agriculture coordinate in rank with the experiment station. The extension director is directly responsible to the dean of the college of agriculture. The director acts as county-agent leader, though much of the field work is done by an assistant in immediate charge of the county agents. In addition to these the extension staff consists of a leader of boys' and girls' clubs, two dairy-extension specialists, a farm-management demonstrator working half time, a soils and crops specialist, and a horticultural specialist on part time; also 11 county agents stationed in as many counties.

Publications.—Publications are classed as bulletins, circulars, and brieflets. One bulletin and two circulars were issued and sent to persons on the general mailing list of the experiment station and to a separate mailing list of the extension service. Thirty-six brieflets were revised and printed. These are first issued in mimeograph form to be used in answering letters. If their further use seems warranted,

they are printed and distributed by county agents at fairs, demonstration meetings, and schools.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$12, 273. 77
Smith-Lever, State.....	2, 273. 77
United States Department of Agriculture, farmers' cooperative demonstration work.....	13, 643. 88
United States Department of Agriculture, Bureau of Animal Industry.....	4, 348. 00
State appropriations.....	5, 388. 09
County.....	19, 624. 84
Total.....	57, 552. 35

Smith-Lever funds were used in support of the following projects: Administration, county agent, home economics, extension schools, boys' and girls' club work, farm boys' camp, farm-management demonstrations, and fairs. Funds from the United States Department of Agriculture were used in support of the following projects: County agent, boys' and girls' club work, farm-management demonstrations, and a creamery-management project conducted in cooperation with the State commissioner of agriculture with the approval of the extension director.

A detailed statement of receipts and expenditures has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 9; June 30, 1916, 11; funds expended, \$34,546.26.

The work was continued as last year with the extension director as county-agent leader in charge and an assistant county-agent leader. For a county to secure an agent and at the same time secure State funds for his support not less than 200 farmers must organize and form a county agricultural association or farm bureau. A \$1 membership fee is a voluntary matter, but the sum of \$1,200 may be secured within each county by taxes raised by the towns. The agents are beginning to make considerable use of these county organizations. Plans are being developed to secure greater cooperation of the local farmers' clubs and granges with the county organizations.

The main lines of the work of the county agents are organized on a definite project basis as follows: (1) Alfalfa; (2) soy beans; (3) oats, including smut control, variety tests, and kale eradication; (4) orchards; (5) lime; (6) top-dressing hay; (7) corn, including variety and fertilizer demonstrations; (8) field beans; (9) oats and

peas; (10) sweet clover; (11) green manuring; (12) potatoes; (13) abortion control; and (14) feeding demonstrations.

The agents conducted 844 demonstrations, at which 356 meetings were held, attended by 4,046 people. The most important demonstrations were those relating to forage crops, soil improvement, horticulture, control of plant diseases, cereals, weed eradication, and dairying. In 1913 there were 154 tons of lime used in the State of Vermont due to county agents' efforts; in 1914, 521 tons; in 1915, 1,200 tons; and in 1916, 4,302 tons. In 1913 lime was costing the farmer from \$7 to \$10 per ton delivered to the farmer regardless of form. In 1915 the average cost of ground limestone delivered to the farmer was \$4.25 per ton and in 1916, \$3.50 per ton. Soy beans were introduced in Vermont in 1914, when 30 acres were grown in Rutland County in a demonstrational way. Other counties took up the project with splendid results. In 1915 the acreage of soy beans grown with corn in Vermont was 767 acres and in 1916 was 3,470 acres. The history of agriculture in this State indicates that no other crop has been so rapidly adopted. The alfalfa demonstrations have changed the prospect of the production of this crop in the State. Successful alfalfa fields are found in every county, and the demonstrations have proven that alfalfa can be grown successfully and economically. In 1915 there were in the State about 1,188 acres and in 1916, 1,963 acres. This year 65 field meetings were held at alfalfa demonstrations, attended by 829 farmers. There has been a marked increase in the number of field meetings held at demonstration plats. During 1915 agents held 59 field meetings, which were attended by 829 farmers. In 1916 there were 356 field meetings, with a total attendance of 4,046.

Home economics.—Three types of work were conducted by the leader and the one part-time assistant, viz, one-week extension schools, fair exhibits, and lecture demonstrations in cooking and canning. Sixteen extension schools, with an average attendance of 73, were held in small towns in farming communities. Six fairs were visited with canning exhibits, and 119 meetings were attended at which lecture demonstrations were given in various phases of cooking and canning. The average attendance at these meetings was about 50.

Extension schools.—Twenty-five agricultural schools were held during the year. These schools are held after the extension service has received a petition signed by 50 persons promising to attend and to guarantee all local expenses, including those of the instructors. Usually two schools are held in each county having a county agent. The course of instruction is planned in conference with the county agent of the county in which the school is to be held. In counties not having agents the director is responsible for the program.

Dairying was discussed in every school. Soils, crops, and animal diseases were discussed with particular reference to dairying and the growing of hay. In 14 extension schools home-economics courses were given. These had an average enrollment of 73 and an average attendance of 37.

Boys' and girls' club work.—One State leader was in charge of the work in the year 1915. One field assistant was furnished for 11 weeks during the summer vacation period from the department of agriculture. The work is carried on in close cooperation with the school system of the State and has the active support of the farmers, business men, women's clubs, and educational institutions throughout the State.

Nine projects were outlined for the club work and 112 club groups were organized, with a total enrollment of 3,098, of which 336 completed all work, including a complete report of the year's work. The total value of club products within the State was reported as \$2,940.14. A very large number of the members completed all the work required in the home projects with the exception of making a final report. The State leader conducted 7 canning demonstrations; 4 field meetings, 10 local fairs, made an exhibit at 1 county fair, 5 district, and 3 State meetings, visited personally 54 club members and plats during the year, and distributed 15,000 pieces of follow-up instruction. Six corn clubs were organized within the State, with an enrollment of 191 members; 37 of these made complete reports. Eighty-eight club members were enrolled in six potato clubs, and out of this enrollment 20 completed all work. Forty-four home canning clubs, with a membership of 1,453, were organized. Out of this number 49 members completed all reports. The value of food products put up by these 49 members was \$158.89. The value of vegetables used at home was \$238.91. In the poultry-club work 12 clubs were organized, with an enrollment of 313 members. Six pig clubs were organized, with a membership of 103, 95 of which completed all work. A total of 98 pure-bred pigs were grown, weighing 14,186 pounds at the close of the season. Total value of pork produced was \$1,552. The average production cost per pound was 3.8 cents. The bread clubs were organized with an enrollment of 312. Of this number 38 made complete reports. One hundred and eight loaves of bread were reported by the 38 members who kept records. In the garment-making project 27 clubs were organized, with an enrollment of 598 members. Of this number, 101 members completed all work and produced the following garments: Twenty-three aprons, 13 dresses, 7 waists, 6 skirts, 9 nightgowns, and 181 miscellaneous pieces.

Farm boys' camp.—Twenty-three farm boys spent a week in camp at the State fair at the expense of the State fair commission. The

boys were selected by 23 Pomona granges. Several hours each day were spent under the guidance of instructors from the agricultural college, the time being given to studying and judging exhibits and to various kinds of field and track sports. The noon and evening camp-fire gatherings were used for instruction and entertainment. The camp was equipped with a full military outfit and was under the control of the university commandant of cadets.

Farm-management demonstration.—Although the farm-management demonstrator devoted but half his time to work in Vermont, the work started last year in cooperation with the county agents in four counties was continued and was taken up with the agents in two other counties. The agents and the farm-management demonstrator assisted 286 farmers to summarize and analyze their farm business as a means of determining their labor incomes and as a basis for deciding upon plans for improvement. Ninety-seven of these farmers were similarly assisted the preceding year, and 201 farmers made arrangements to keep simple farm accounts as a means of studying their farm business more thoroughly. Arrangements were made for a farm-management demonstrator to devote full time to this work in Vermont.

Fair exhibits.—The plan under this project was to give instruction by means of exhibits at the State fair and county and local fairs. Exhibits were shown at 18 fairs and at the meetings of the State horticultural society, the State dairymen's association, the maple-sugar makers' association, and the boys' and girls' exposition. Boys' stock-judging contests were held at the State fair and nine county fairs. A specialist in stock judging gave the boys special instruction and conducted demonstrations at intervals during the three months previous to the opening of the fair season, working in close cooperation with county agents and teachers of agriculture in high schools. Seventy-five of these preliminary demonstrations were given, attended by 710 boys. Ninety-three boys took part in the contests, winning a total of 34 prizes. Two contests were held at the State fair, one for boys who had been winners at county fairs, the other for boys without experience in judging contests.

OTHER EXTENSION WORK.

Creamery management.—Extension work in creamery management is conducted by the Dairy Division of the United States Department of Agriculture in cooperation with the State commissioner of agriculture under the approval of the extension director. In this work assistance was given to creamery directors and butter makers in the use of better methods for creamery management, so as to insure a continuance of markets for farm dairy products.

Eleven creameries made extensive use of the service, resulting in a marked increase in their profits, thus making better returns to their patrons.

OUTLOOK.

County-agent work in Vermont was early recognized as important and even before the passage of the Smith-Lever Act it was well under way, and actively supported by the college, farmers, and business men and organizations. The work has been strengthened and added to until now every agricultural county of the State except one has an agent. During the year it was the leading feature of extension work. The fact that not less than 200 farmers must organize into a county agricultural association before an agent can be secured assures support to the agent after employment. The projects as adopted are designed to meet the needs of each county. The demonstration feature of the work has resulted in securing results. Alfalfa and soy beans have become widely grown in the State; the use of lime has greatly increased and the cost per ton has greatly decreased. Through extension schools the various subject-matter specialists have given instruction, these schools being planned for in connection with the county agent, and are made to meet the local needs, and thus supplant and strengthen the work of the agents. Boys' and girls' club work was conducted in cooperation with the public-school system. While the number of projects outlined was not large, it is possible that until more adequate local leadership is provided, particularly for the summer vacation period, they should be still further limited.

WASHINGTON.

Division of Extension, State College of Washington, *Pullman*.

W. S. THORNBUR, *Director*.

[J. A. TORMEY resigned Oct. 1, 1915.]

Organization and administration.—The extension work was almost completely reorganized during the past year. Previous to October 15, 1915, most of the extension work was centered in the director of the experiment station as director of the bureau of farm development. With the election of a new college president the board of trustees created the extension division and put all extension work in charge of its director. Under the law of the State of Washington, the director of the experiment station, with certain limitations, is given charge of the county agricultural-agent work. At this time, however, the connection of the director of the experiment station with the extension work is only nominal.

During the year the new extension director took office, and farm-management demonstrations and boys' and girls' club work were

transferred from the experiment station to the extension division. The extension work in dairying, conducted by the Dairy Division of the United States Department of Agriculture, was closely correlated to other extension work of the State. At the close of the fiscal year ending June 30, 1916, the extension staff consisted of the director, county-agent leader, 11 county agents, State leader and assistant State leader and 6 county club leaders in boys' and girls' club work, farm-management demonstrator, 5 specialists in agriculture and 1 in home economics. Cordial relations have continued with the western experiment station, located at Puyallup, also with the State commission of agriculture and the State department of public instruction.

Publications.—Fourteen bulletins and three circulars were issued during the year. The extension news service was issued twice a month, being sent to the papers of the State.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$16, 522. 46
Smith-Lever, State.....	6, 522. 46
United States Department of Agriculture, Farmers' cooperative demonstration work	8, 414. 51
United States Department of Agriculture, Bureau of Animal Industry.....	2, 218. 00
State appropriations	13, 887. 86
College.....	4, 538. 17
County.....	22, 694. 33
Other sources within the State.....	5, 958. 75
Total	80, 756. 54

Smith-Lever funds were used in support of the following projects: Administration, county agents, home economics, boys' and girls' club work, dairy and live stock, poultry, soils, and farm-management demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairying, and farm-management demonstrations.

A detailed statement of expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 10; June 30, 1916, 11; funds expended, \$33,705.16.

The matter of county organization in support of county-agent work is being given attention, the type of organization proposed being a delegate body called an agricultural council, selected from

granges, farmers' clubs, and other farmers' organizations. These delegates act as an advisory committee, assisting the county agent in the development of his projects. Several of the counties with agents have no organization as yet.

Some progress was made toward the adoption of projects. This work will be further developed another year. The following lines of work were stressed by the agents: (1) Control of codling moth, (2) organization of cow-testing associations, (3) introduction of hybrid wheat varieties, (4) introduction of silage-corn varieties, (5) clearing cut-over land, (6) reclamation of tide lands, (7) control of thrasher explosions, (8) substitution of peas for summer fallow, (9) clover introduction, (10) wheat silage, (11) growing sweet clover, (12) control of coulee crickets, (13) organization of marketing associations, (14) testing for tuberculosis, and (15) holding community fairs.

Seven hundred and forty demonstrations were conducted, at which 212 meetings were held, attended by 2,833 people. Controlling of the codling moth in orchards was a project of considerable importance in the apple-producing counties. At the suggestions of the agents 469 orchards, involving 101,507 trees, were cared for. The introduction of wheat hybrids was an important line of work in eastern Washington. Some of these hybrids have given increased yields of from 3 to 13 bushels per acre over the varieties ordinarily grown. One of these varieties, the Winter Bluestem, combines the hardness of the Turkey and the beardless head of the Bluestem and grades of market as Bluestem, commanding a premium of 3 to 10 cents per bushel over Club. Explosion of thrasher outfits caused by dust are a source of great loss both of property and life throughout the wheat belt. Through cooperation with the Office of Public Roads and Rural Engineering and the Bureau of Chemistry, United States Department of Agriculture, several demonstrations were conducted for the control of explosions and the extinguishment of fires. As a result of the demonstrations several thrashing outfits were equipped with fire-prevention attachments. Elimination of summer fallow, which is the common practice in the Palouse section, was undertaken by the agent in Spokane County. Peas are grown in the year the land has been accustomed to lie fallow. The demonstration work conducted in 1915 was so successful that more than 10,000 acres were planted to peas in this county this year. The yield of peas has averaged 33 bushels per acre, netting \$40 to \$50 per acre to the farmer. The wheat following the peas was better than following summer fallow. The use of peas, wheat, and sweet clover as silage was also successfully demonstrated. These demonstrations had for their purpose the introduction of live stock into what is now purely a grain-farming district. Reclamation of tide lands by diking in

Wahkiakum County has added 3,500 acres of land to the tillable area of the county. This land had a speculative value before diking of about \$20 per acre. The cost of diking was \$30 per acre, actual selling value after diking, \$100 per acre. These diking districts were organized by the county agent as a direct result of his work. In the same manner drainage districts were organized by the county agent in King County, reclaiming 8,400 acres of land. This involves five projects, in four of which the draining has already been completed. Cooperative marketing was greatly stimulated by the agents. Live stock, potatoes, and strawberries were marketed cooperatively with economy and profit. In Benton County the agent organized 95 per cent of the strawberry producers who marketed 41,669 crates at an advance to the grower of from 75 to 90 cents per crate over former prices. The total business of the cooperative associations organized by the agent during 1916 amounted to \$124,900.

Home economics.—The one worker in the field devoted a large part of her time to demonstrations at extension schools and one-day meetings. Two hundred and forty-seven meetings were held during the year, with an attendance of 23,148. A number of demonstrations were conducted in the more isolated farm homes. Fifty such homes were visited and sufficient time spent in each to learn something of real farm-home needs and to contribute something of a helpful nature. During the year seven kitchens were remodeled in such a way as to simplify the housewives' work, and in many homes comfort and beauty resulted from suggestions made by the demonstrator, with reference to convenience, renovation, and decoration. Ten days were spent at the summer school conducted by the State college at Puyallup, Wash., where the leader held conferences on home-economics subjects with rural teachers during the morning and gave special demonstrations for housewives in the afternoon, thus meeting 1,050 interested persons.

Boys' and girls' club work.—Club work was conducted during the year in the State of Washington by the State leader, an assistant State leader, and one district leader in Yakima Valley. In the promotion and direction of the work throughout the State the active cooperation of the county agricultural agents, county superintendents of schools, department of public instruction, business men, and farmers was secured, all of whom contributed largely to the supervision and follow-up work as well as to the encouragement of the work in other ways. A project agreement was made with the department of education defining the relation of club work to the school system of the State. Members were organized into local clubs, and volunteer local leaders were secured for each club, monthly or bimonthly meetings were held with programs, and each member carried out a definite

project, as outlined by the leader in charge. A system of follow-up instruction was furnished by the State leader for each project undertaken. Field meetings for the instruction of club members and demonstration training schools for the special training of boys and girls were held. Personal visits were made to club plats and definite arrangements for the final closing up of the work were made in connection with the local, county, district, and State fairs.

Nineteen agricultural and home-economics projects were outlined for the work of the clubs. A total of 1,127 clubs was organized in the State, containing a membership of 9,578 who actually began the work. Of this number, 3,157 completed all the work required of them.

Fifty per cent of the 1915 enrollment remained in the work for 1916.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Corn, 43 clubs, 67 members, reporting 62.67 acres, producing 1,861 bushels of corn; potato, 63 clubs, 122 members, reporting 14.10 acres, producing 2,109 bushels of potatoes; garden, 130 clubs, 2,606 members, reporting 8,276.5 square rods, yielding products estimated to be worth \$12,197.11; garden and canning, 107 clubs, 484 members, reporting a production of 3,062 glasses of jelly and 42,009 jars canned food; poultry, 75 clubs, 159 members, reporting a production of 1,765 chicks and 903 dozen eggs; beef, 4 members, reporting products estimated to be worth \$31.25; pig, 206 members, reporting a production of 384 animals; sewing, 20 clubs, 52 members, reporting a production of 419 articles; handicraft, 2 members, reporting a production of 3 articles; rabbit, 21 clubs, 177 members, reporting products estimated to be worth \$149.05; flower, 24 members, reporting products estimated to be worth \$24.26; sheep, 31 members, reporting products estimated to be worth \$1,033.63; dairy, 3 members, reporting a production estimated to be worth \$1,557.98; bee, 3 members, reporting products estimated to be worth \$56.50; fruit, 3 members, reporting products estimated to be worth \$137.55; pigeon, 2 members, reporting products estimated to be worth \$9.75.

A part of the club work of unusual interest was the 165 canning demonstrations given by the State leaders for the benefit of club members, who were permitted to invite their parents and friends to attend these public meetings. These meetings were attended by 3,202 children, while the total number of other visitors was 6,396. The club members produced \$10,981.56 worth of canned products, estimated on the basis of local market value of the products.

Poultry.—The extension service joins with the teaching department of the college in employing a poultry expert, each paying half her salary, but the extension service pays all the traveling expenses when

the specialist is away from the college. The activities of the work are shown in the following: Number of meetings held, 83, with a total attendance of 4,701; and 79 farmers were visited.

Dairying and live stock.—Two field agents were employed in this work, one located in eastern and the other in western Washington. These two specialists held 303 meetings and made 1,383 farm visits. Among the results of the work are noted: The construction of 103 silos and 5 barns; the organization of 13 cow-testing associations, with 7,414 cows under test in these associations. Four hundred and ninety-one herd records are being kept.

This work is closely coordinated with the work of the county agents, and is conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

Soil management and crop production.—Work under this project was begun in November, 1915, the work in 1916 being confined to corn, wheat, peas, and oats.

In Skagit County one small farm demonstration showed how the food values of certain crops could be increased and demonstrated the use of certain varieties of oats.

In conjunction with this project 156 meetings were held, with an attendance of 7,776. Thirty-four farms were visited in relation to soil problems, four for crop and soil problems, and six for crop problems.

Farm-management demonstrations.—Farm-management demonstrations were started in four counties last year by the county agents with the assistance of the State farm-management demonstrator. Of the 432 farmers in these four counties who were assisted in summarizing and analyzing their farm business last year, 259 were assisted again this year. In addition, 135 farmers in these counties and in one other county in which the work was launched this year were given such help for the first time. This makes a total of 394 farmers who are studying their farm business in this manner in an effort to make their farms more profitable. Many farmers have asked for assistance in keeping farm accounts, therefore, a simple farm-account book is being prepared for this purpose.

Extension schools.—Twenty-eight schools were held, with a total number of 222 sessions and a total attendance of 22,528. The general subjects handled at the schools were dairying, live stock and poultry husbandry, soils and crops, farm machinery, drainage, irrigation, and home economics. The general plan of work in these schools included a lecture, discussion, or demonstration in a central meeting place for the forenoon work, and field, barn, or yard demonstration in the afternoon at different points about the community in which the school is held. Generally the afternoon demonstrations took up the same subjects as were presented in the morning lectures. Two of

these schools were held in counties where agents are employed. As a rule, however, the county agents prefer either single sessions or one or two day meetings.

OUTLOOK.

The county-agent work was without definite leadership for about one-half of the year, but it held its own and gained one county. Need is seen for organized support of the work in this county and recognition is being given to the various agricultural organizations already existing rather than in the formation of new ones.

Of the various practical lines of work undertaken by agents, the control of thrasher explosions, the substitution of peas for summer fallow, and the introduction of wheat silage are likely to prove of special value.

In the club work the canning demonstrations were especially helpful. While this work is primarily for boys and girls, it appears that about twice the number of adults as children were present at the canning demonstrations. Though the club work is carried on in co-operation with the school system, a need is seen for definite local leadership during the summer vacation period. Instruction in soil management and crop production, though under way but a part of the year, is recognized as a fundamental subject, upon the success of which all agricultural prosperity depends. The attendance at the meetings held in furtherance of the work is encouraging.

The more complete organization of the extension division and the greater consideration given to coordination of effort and cooperative relations during the year are already having a marked beneficial effect on the extension work of the service. A change in the State law whereby county-agent work is definitely placed under the administration of the extension director rather than the experiment-station director would allow a closer coordination of the work.

WISCONSIN.

Division of Agricultural Extension Service, College of Agriculture,
University of Wisconsin, *Madison*.

H. L. RUSSELL, *Director*; K. L. HATCH, *Assistant Director*.

Organization and administration.—The dean of the college of agriculture and director of the experiment station continued as director of agricultural extension, with much of the administrative responsibility for extension work delegated to the assistant director as last year. The extension specialists under the various projects are considered an integral part of the department of college teaching and experiment-station work. The head of the department in every case is considered as the head of the extension work associated with that department, and the extension specialists when at the institution

office with the department of instruction and are recognized as members of the staff of that department. In most cases the head of the department takes an active interest in the extension work and actually devotes a considerable portion of his time to it. Before any subject matter is used by the extension specialist, thorough trials are made at the experiment station to be certain that the subject matter as presented is in accord with the facts in the case. Under this organization many men do research, resident teaching, and extension work; however, they are paid from extension funds for extension work only. Regular written reports are not required by the extension director of extension workers, verbal reports being made from time to time, and written reports being submitted upon the completion of an important piece of work.

Publications.—The extension publications issued by the college of agriculture during the year included 7 circulars and 15 stencil bulletins; total number of pages, 179; total number of printed circulars, 217,000; total number of stencil bulletins, 39,400. Number on mailing list for extension publications is 30,000. This list is classified into 35 sections and when a publication is issued it is sent only to appropriate sections.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal.....	\$26, 164. 99
Smith-Lever, State.....	16, 164. 99
United States Department of Agriculture, farmers' co-operative demonstration work.....	10, 901. 70
United States Department of Agriculture, Bureau of Animal Industry.....	1, 200. 00
College.....	20, 503. 82
County.....	14, 320. 00
Total.....	89, 255. 50

Smith-Lever funds were used in support of the following projects: County agents, home economics, extension schools, animal husbandry, soil-management demonstrations, land-clearing demonstrations, plant-disease-control demonstrations, and drainage demonstrations. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, dairying, and farm-management demonstrations.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 12; June 30, 1916, 13; funds expended, \$41,529.87.

The work continued as last year with a county-agent leader in charge. There are no farm-bureau organizations in the State. A

committee of the county board of supervisors usually advise with the county agent relative to his work, and represents the county in cooperative relations with the college and the United States Department of Agriculture. In the development of the work the agents have found it advisable to organize and to work with many local farmers' organizations, such as potato-growers' associations, live-stock-breeders' associations, cow-testing associations, farmers' clubs, farmers' exchanges, etc. During the past year 112 such associations were organized. The counties having agents are, with one exception, located in the northern part of the State.

All of the main lines of county-agent work are on a written project basis. These projects are decided upon at a conference of the county-agent leader, the county agent, and a committee of the board of supervisors above mentioned. There are 59 of these written projects, covering about 90 definite pieces of work. They cover in the main the following lines of work: (1) Live stock, including black-leg and tuberculosis control, cow testing, the introduction of better sires, and the introduction of bacon type of hogs; (2) corn, including the introduction of early varieties of Dent corn, and the developing of a corn center; (3) potatoes, including the treatment of seed to prevent scab and scurf, and the spraying for blight, the using of fertilizers to increase crop yield, the improvement of the crop by the selection and the growing of pure-bred varieties, and work with potato growers' association; (4) alfalfa, to demonstrate the value of inoculation; (5) prevention of smut on oats; (6) introduction of root crops on heavy soil and to determine the cost of production; (7) introduction of soy beans; (8) spraying the orchard; (9) farm management; (10) land clearing; (11) farm buildings; (12) drainage; (13) balanced rations for live-stock feeding; and (14) the value of fertilizers on various crops.

Ten thousand and forty-six demonstrations were conducted, at which 341 meetings were held, attended by 11,740 people. The most important demonstrations were those relating to land clearing, the control of insect and plant diseases, soil improvement, live-stock diseases, forage crops, and dairying. The work is so largely confined to the northern part of the State, where the number of farmers to the county is not large, that the agents are able to do a considerable amount of work with individual farmers. Much of this work is assisting new settlers in the development of new cut-over timbered areas. Land clearing is, consequently, a very important problem. Two land-clearing demonstrations were conducted in Rusk County, with a total attendance of over 1,500 people. Following these demonstrations the State bank at Weyerhauser cooperated with the agent by ordering a carload of dynamite, which was sold to the farmers at cost, based upon the prevailing cost of dynamite,

thus effecting a saving of \$1,200. The development of the potato industry is receiving considerable attention. In Oneida County the county agent has very greatly stimulated the growing of certified seed potatoes. Last year the potatoes shown from this county won at the State fair and made an excellent showing at the national potato show. This advertising enabled the farmers to sell 10,000 bushels of certified seed at from 25 to 50 cents per bushel in advance of the regular market price. Dairying has received much attention from the agents in all counties. In Walworth County four cow-testing associations have been organized, and much interest stimulated in the dairy business. Thirty-six thousand two hundred and fifty-five dollars' worth of live stock was sold, representing 20 cars of grade and pure-bred stock and 7 herd sires.

Home economics.—Work for the year included 13 extension schools, each lasting a week, attended by 1,925; 4 two and three day schools, attended by 335; 94 meetings, attended by 15,289 people; and 5 weeks' county work, reaching 1,550 people. Instructional and demonstration work is planned for five years, giving emphasis to food, clothing, house management, and health, the aim being to give the people of a community a basis upon which they may build for themselves. An effort is made to form clubs among the women for the study of home-economics work. Members of the home-economics staff have assisted the leader of the boys' and girls' clubs in the organization and development of girls' clubs. One of the State-wide workers has visited typical homes either with the county agent or with the extension instructor of the county agricultural school, and through the contact thus formed has aided in securing the adoption of conveniences in the farm home.

Extension schools.—Under the title of extension courses, 19 extension schools of four days each were held throughout the State. Thirteen home-economics courses were also held. The farmers' course and the home-economics course were held on the same dates in the same town. The various programs rendered were denominated corn programs, dairy programs, fruit programs, etc. Other subjects which may be related to the main subject for discussion are also considered. The corn and dairy program is usually given the first year and is followed by other programs in succeeding years. Illustrative and demonstration material is sent from the college. Local material is used whenever such can be obtained. Two instructors are provided for the men's courses and two women for the home-economics courses. To secure an extension school a formal application containing the names of 50 people in a rural community must be filed with the extension director. No fee is required for registration. Whenever schools are held in a county having an agent the follow-up work is placed largely in his hands. In addition to the 19 extension

schools, 5 other schools called farmers' courses of three days each were conducted. The program resembled those carried out in the extension schools.

The attendance at the various courses conducted under this project was as follows:

Eighteen extension schools	3,351
Six farmers' courses, three days each	4,065
Twelve bankers' meetings for farmers	4,881
Four grain contests	834
Seven one-day special meetings	1,490
Thirteen home-economics schools	1,925
Four two and three day home-economics courses	355
Total	16,901

In addition to the meetings named above, the farmers' week was held at Madison at the college of agriculture, the attendance at the day sessions during the week being 1,884 and at the evening sessions 855.

Live-stock demonstrations.—Demonstrations in judging and judging contests were conducted in connection with community breeders' associations. Feeding, care, and general management of stock were discussed. At the present time 115 community breeders' associations are in active operation in the State. Both summer and winter meetings have been held by 71 of these associations.

Soil-management demonstrations.—The demonstrations on soils and crops have been definitely grouped according to the varying soil conditions in the State. This is a distinct step forward. Twenty-eight demonstrations were held on sandy soil, 19 on marshy soils, and 22 on clay and silt loam soils. In Wisconsin the use of commercial fertilizer has not become a settled practice as in the States of the East. Where the soils are acid and clover will not grow lime is used. On reclaimed marsh land the farmers think that because the soil is black it is fertile, but this is not necessarily the case. The points demonstrated in the management of sandy soils include deeper seeding, rolling, the seeding of clover without a nurse crop or with a very light nurse crop, and the use of lime and commercial fertilizers in securing a good growth of legumes. On silt loam soil an application of 400 pounds of bone meal and 300 pounds of sulphate of potash gave a yield of 160 bushels of potatoes, while the unfertilized plat yielded only 90 bushels per acre. The most striking results were obtained on the marsh soils. On John Sautter's farm potatoes on such soil gave the following yields per acre: No treatment, 64 bushels; acid phosphate, 118 bushels; acid phosphate and potash, 224 bushels; potash, 182 bushels; potash and basic slag, 202 bushels. The success of this demonstration in 1915 led to the purchas-

ing by farmers in the immediate vicinity in 1916 of five carloads of phosphate fertilizer and five carloads of wood ashes.

Land-clearing demonstrations.—Demonstrations in the use of hand and power machinery and explosives in the clearing of cut-over lands were conducted on 16 areas ranging from 3 to 20 acres in size. This being a cooperative undertaking, railroad companies, owners of stump land, and manufacturers of explosives and stumping machinery participating. Dynamite, horse, and one-man stump pullers and horse stump pilers were used singly and in combination. More than 8,000 owners of stump lands visited these demonstrations, saw the results, and exchanged ideas.

Plant-disease-control demonstrations.—This work consisted largely of establishing disease-resistant strains of cabbage on farms on which cabbage growing had been abandoned for less profitable crops owing to the ravages of "cabbage yellows." During the present year such plats were established on 104 farms, mainly in Racine and Kenosha Counties, comprising a total of 316 acres. In cooperation with the county representative control of potato disease through seed disinfection is being demonstrated on 114 farms. The high price of spraying material had necessitated the substitution of this method of disease control for the more satisfactory and certain use of Bordeaux mixture.

Drainage demonstrations.—Demonstrations in the proper methods of reclaiming marsh and lowlands were conducted by the leader and his assistant on 33 areas, 21 of which were added during the past year. Since there lies within a radius of 6 miles of each of the plats from 1,500 to 50,000 acres of land that will be benefited by similar treatment, the large significance of this reclamation project is at once apparent. Without question the 33 demonstrations now under way will ultimately result in adding several million dollars to the value of the State's agricultural land. In connection with this work 41 meetings, attended by 2,400 people, were held on or near these drainage centers for the discussion of drainage problems.

OTHER EXTENSION WORK.

Boys' and girls' club work.—Club work was continued with a State leader in charge of the work, with no additional leadership for the year 1916 except a number of volunteer leaders secured by the State leader in charge. The State club leader cooperates with the county agents, superintendents of schools, and the adult farmers' associations of the State. In potato-club work he cooperates with the Wisconsin Potato Growers' Association. In calf club, poultry, swine, and dairy club work he cooperates with the various breeders' associations. This cooperation has secured the active support of the

best producers in the State, and is contributing greatly to the efficiency of the work.

Some of the most interesting results of the work are as follows: In corn-club work 251 members produced 17,328 bushels of corn. The value of corn as both seed and feed amounted to \$17,956.05. In the potato-club work 1,871 members produced 7,381 bushels of potatoes on 97 acres. In the garden and canning-club work 2,138 members completed all work. In the alfalfa-club project 112 members averaged 2.5 tons of alfalfa per acre. The poultry-club project had 246 members, who managed 2,920 fowls during the season. In the baby-beef-club work 37 members produced 29,807.2 pounds of beef and made a profit of \$1,346.60. In the pig-club work 16 members produced 3,456 pounds of pork, at a cost of 5.5 cents a pound. The bread-club work had 169 members, who completed all work and contributed all their bread products for home consumption. In the calf-club work 82 members raised 82 calves. Three thousand five hundred and ninety club members completed all work and reported products valued at \$29,562.49. The total cost of production was \$11,695.27. Five thousand two hundred and fifty dollars was provided by local subscription for use in defraying expenses of short courses and the State fair encampment. During the year 40 exhibits in club work were held in 40 different localities within the State. An unusual feature of the work in the State was the cooperation and support secured from various breeders' and growers' associations for the leadership and promotion of boys' and girls' work. Their active support has been of great value to the work.

Dairy management.—Cooperative work under this project was begun in September, 1915, by the University of Wisconsin, the Wisconsin Dairymen's Association, and the Dairy Division of the United States Department of Agriculture. Since that time 23 new cow-testing associations have been organized, with a membership of 609 farmers, owning 10,018 cows. Some assistance was given to 28 other associations in increasing their membership and number of cows.

Dairy manufacturing demonstrations.—The work carried on under this project in cooperation with the Dairy Division of the United States Department of Agriculture may be divided into five parts:

(1) Improvement of products at a few selected factories. Under this division four creameries were selected. The patrons and manufacturers were instructed in the care of cream and of delivery to the creamery. The butter maker was instructed in methods for increasing the quality of the product and reducing the losses.

(2) Explanation of organization and of plans for new factories. Under this division of the work four points were visited for the express purposes of giving assistance and organizing new factories. At the meetings held the attendance of farmers varied from 40 to 60.

(3) Response to miscellaneous requests for advice on cause and remedy of defects in butter and cheese. At one of these creameries assistance affected a net saving to the 164 patrons of the creamery of not less than \$2,300.

(4) Milk-testing instruction to groups of cheese makers. Instruction was given to groups of cheese makers at four different places. At these milk-testing schools the cheese makers usually brought their own samples of milk, and a number of them expressed their intention of obtaining a tester and using it regularly in their factory work in the future.

(5) Butter and cheese scoring exhibitions. During the year there was received 567 tubs of butter from 196 creameries and 101 cheeses from several different factories for scoring purposes.

Orchard-management demonstrations.—These consisted chiefly of spraying and pruning demonstrations, of which there are 32 under way. The spraying demonstration plats average about one-half acre each, while the public pruning demonstrations conducted early in the spring included the entire orchard whether large or small. As a result 10 orchards in the vicinity of one of these pruning demonstrations were pruned this spring for the first time. Apple-packing demonstrations were also held in two localities.

Alfalfa-growing demonstrations.—Four hundred and five demonstration plats of alfalfa of 2 to 4 acres each are under way. In most cases the leader of this project has been able to give only general advice and assistance to the county representatives or other local leaders who have direct charge of the details of these demonstrations. Comparative tests are being made of five varieties of alfalfa on these plats. Addresses on alfalfa growing were given in 26 localities during the year, and some farmers' excursions were conducted for the inspection of various alfalfa fields.

Potato-growing demonstrations.—This work includes meetings on potato fields, where instruction and demonstration in identification of varieties, roguing for mixtures, and spraying for insect and disease control is given. Special value is attached to gatherings at district schools in the interest of potato-club work and farmers' schools for potato judging and the formation of local growers' associations. The results of this work are brought together at a State convention and exhibit in which all phases of the potato industry of special importance to the newly developed sections of the State are represented.

Weed eradication.—Special attention has been given to quack grass and Canada thistle, with some attention to buckhorn, 26 areas being handled in this work. The methods used were a more or less complete summer fallow followed by a smother crop, such as rye, vetch, hemp, or buckwheat, the latter being usually more effective.

The smother crop is followed by a crop needing close cultivation, like potatoes.

Farm-management demonstrations.—At the beginning of the fiscal year the farm-management demonstration work was separated from the farm-contest work and has since been conducted as a separate project, with a farm-management demonstrator in immediate charge. Within the year the farm-management demonstrator in cooperation with county agents and agricultural high-school teachers launched demonstrations in 7 counties and assisted 484 farmers in studying their farms by making summaries and analyses of the preceding year's business. As the analysis indicated that some farmers were making much more than others, 144 farmers, after studying their farm business in comparison with some of their more successful neighbors, made some definite change in the organization or administration of the farm business in an effort to make a greater net income. Many farmers were interested in farm accounts, and 326 made definite arrangements to start a simple farm-record book.

Farmers' institutes.—Most of the farmers' institutes have been special dairy institutes. The success which has been obtained through these has also been applied to other lines of agricultural extension. Arrangements were made for special institutes for sheep and fruit. In locating a special sheep institute the field was carefully canvassed beforehand and a few sheepmen personally interviewed. The farmers brought sheep and a whole day was devoted to that subject at each place. As a result 19 sheep centers were organized to extend sheep husbandry by means of well-planned follow-up work. The Wisconsin Horticultural Society and the State department of agriculture are cooperating with the superintendent of farmers' institutes in conducting about 24 special fruit institutes, with a practical plan of follow-up work. Ten special potato institutes were held in cooperation with the Wisconsin Potato Growers' Association, with the result that 10 community potato growers' associations with about 300 farmer members, started growing one or two varieties of potatoes adapted to their locality. These associations were all to be visited in August by the same worker, and field institutes were held in which variety characteristics, diseases, and insect injuries were studied and in which roguing was done. The specialists working under separate projects gave much assistance at the institutes, and especially in work on soils and in the raising of alfalfa. These workers returned in the spring and assisted the farmers in carrying out the instructions given in the institutes. In all 198 institutes were held, with a total attendance of 79,279. The State legislature appropriated \$20,000 with which to conduct the work.

OUTLOOK.

The organization of the work in Wisconsin provides for the closest cooperation between the research workers of the experiment station and the extension workers. The county agents, though not provided with county farm-bureau associations, work with various associations already organized. Their work being on a definite written project basis will make for continuity of effort and the securing of results. The specialized program of the extension courses and of the farmers' institutes, with the definite follow-up work which has been arranged, should be converted into results in better farming. A splendid spirit of cooperation and service seems to pervade the work in this State.

WYOMING.

Division of Extension Work, College of Agriculture, University of Wyoming,
Laramie.

A. E. BOWMAN, *Director*.

Organization and administration.—Extension work continued under the supervision of the extension director as last year. There is no State department of agriculture in Wyoming, and by law the extension division is responsible for farmers' institutes.

Publications.—During the year the general plan of the Wyoming Farm Bulletin was changed so that each subject-matter department was given definite space each month. This publication thus appears as the official organ of the extension division and is regularly sent to about 11,000 people.

One bulletin giving instructions in sewing and a series of eight 4-page pamphlets were issued for the use of club members in their work.

Finances.—The following funds were available for cooperative extension work in agriculture and home economics for the year ended June 30, 1916:

Smith-Lever, Federal	\$11, 249. 20
Smith-Lever, State.....	1, 249. 20
United States Department of Agriculture, farmers' co- operative demonstration work.....	7, 078. 33
United States Department of Agriculture, Bureau of Animal Industry	1, 500. 00
State appropriations.....	17, 736. 86
County.....	5, 003. 88
Other sources within the State.....	600. 00
Total.....	44, 417. 47

Smith-Lever funds were used in the support of the following projects: Administration, county agents, home economics, extension

schools, boys' and girls' club work, and dairying. Funds from the United States Department of Agriculture were used in the support of the following projects: County agents, boys' and girls' club work, and dairying.

A detailed statement of the expenditures and receipts has been received and approved.

SMITH-LEVER PROJECTS.

County-agent work.—Number of counties with agents June 30, 1915, 3; June 30, 1916, 8; funds expended, \$24,060.60.

The county-agent work was in charge of a county-agent leader who devoted one-half of his time to it.

The county commissioners of all the counties with agents uniformly supported the agents by county appropriations to the amount of \$850 annually. These funds were paid directly to the agents as a part of their salary.

No farm bureaus were organized in the counties, but existing granges and farmers' unions cooperated with the agents. A few local groups of farmers were organized by agents for special purposes, e. g., a club for cooperating in the control of blackleg in calves, etc.

The more important lines of work of the agents were placed on a project basis, as follows: (1) Farmers' exchange, (2) boys' pork and crop production club, (3) girls' garden and canning work, (4) sweet clover, (5) eradication of blackleg, (6) silo construction and filling, (7) elimination of unprofitable cows, (8) better county fairs, and (9) smut control.

Two hundred and ten demonstrations were held, with 168 meetings, attended by 1,699 persons. Among the more important demonstrations were smut control, sweet clover for seed, blackleg vaccination, rural engineering, silo building and filling, and contagious abortion control.

Wyoming being primarily a cattle country, county agents have opportunity to render valuable services in connection with the control of prevalent diseases among cattle. The agents reported 75 treatment demonstrations for the control of blackleg, and that 36,034 head of cattle were successfully vaccinated by the agents. Ten blackleg clubs were formed as a result of these local demonstrations. They are usually composed of a half dozen or more neighbors who join in purchasing a vaccinating outfit, and as a result of the agents' demonstrations they are able to vaccinate their own stock.

One hundred and fifty-one registered sires of all kinds were introduced through the direct influence of county agents during the year.

It is estimated that a saving of \$50,000 was reported by county agents in demonstrating harvesting sweet-clover seed, which had for years been going to waste in volunteer fields.

The county agent in Crook County, in cooperation with the college dairy specialist, gave assistance in the purchasing of dairy cattle in Wisconsin. This work was so conducted that a second shipment was made by the people unaided by the specialist or the agent.

Home economics.—Work was conducted chiefly by means of lectures and demonstrations at meetings, about 10,000 women being reached during the year, as follows: Attendance at club meetings, 297; extension schools, 1,511; teachers' institutes, 2,612; farmers' institutes, 2,970; other public meetings, 2,900. Seventy-three visits were made to farm homes. The rearrangement of kitchen equipment was the most popular subject treated in the work this year.

Extension schools.—Three extension schools were held at the places where schools were conducted the previous year. The total attendance at the three schools was 2,239. Two men and one woman were sent to each school as instructors. On account of a limited number of specialists it was not possible to meet all the requests for schools.

Boys' and girls' club work.—Club work in the State of Wyoming was conducted by the State leader and by one woman assistant, who worked in direct cooperation with the public-school system of the State, the county agricultural agents, business and farmers' organizations, and others interested in the practical development of agriculture within the State.

The boys and girls were organized into club groups, and a local volunteer leader selected to cooperate with the State leaders and county officials in directing the club. These clubs held regular meetings and were directed by the State and county leaders in matters of follow-up instruction, field meetings, demonstrations, subject-matter project instructions, and by personal visits to club plats. The State leader furnished printed and multigraphed seasonal instructions from time to time, as needed.

Three projects were outlined for home-project work and study, under which 37 club groups were organized. The total enrollment of the clubs was 563; of this number, 187 completed all the work required of them. The total value of all products produced by those reporting was \$3,647.20. Seventeen per cent of the club enrollment for the year were also members in 1915. The total club enrollment and the total results in the work were handled by the unpaid or volunteer local leaders. The two State leaders in charge of the work conducted 15 canning demonstrations, 43 field demonstrations, 5 district fairs and festivals, 8 local fairs, and 10 county exhibits and

fairs, and visited 235 club plats during the year. The club enrollment for 1916 indicated a decrease of 50 members from the enrollment of 1915. This was due to the fact that the State leader in charge of the work cut down the number of products from five to three, in order to do more intensive and thorough work. It was reported by the leader that the actual membership and results was greater than in the previous year, the products of higher standard, and every plat a better demonstration.

In the club-project work the number of clubs completing the assigned work, members reporting, and the resulting products were as follows: Garden and canning, 16 clubs, 65 members, reporting 960 square rods, yielding products estimated to be worth \$1,579.44; pork and crop production, 13 clubs, 82 members, reporting a production of 8,777 pounds of pork and crops estimated to be worth \$949.38; sewing, 7 clubs, 45 members, reporting a production of 132 pieces of sewing.

Dairying.—The work in dairying was done in close cooperation with the county agents and the record of results secured was due to the united effort of county agents and the extension instructor in dairying. Active attention was given toward arousing interest in silo construction, use of pure-bred bulls, and feeding better rations. Assistance was given in the construction of 30 silos. Other silos were built in communities where silos had not been previously built. Twelve barns were remodeled. Three milk houses were built. Herd records were kept of 15 herds. Sixty-six meetings were attended, including farmers' institutes, at which the total attendance was 4,382. At 4 short courses of 11 sessions, attended by 735 persons, 6 lectures were given on dairy subjects.

At the State fair and one county fair judging demonstrations were given. During the year 19 carloads of cattle were brought into the State, 372 head of which were purchased by farmers through the assistance of extension workers, effecting a saving in price to the farmers of over \$7,000. Assistance was given eight creameries in improving the quality of butter made by the use of pasteurizers, starters, refrigerators, and methods for handling the milk and cream trade.

The work was conducted in cooperation with the Dairy Division of the United States Department of Agriculture.

OTHER EXTENSION WORK.

State and county fairs.—The college prepares an exhibit for fairs which consists entirely of educational material, such as maps, charts, photographs, models of barns, silos, etc. During the week of the State fair a pit silo was dug and a demonstration given of the

methods of construction. Exhibits of the products of the champion boys' and girls' club members from each county were shown.

Farmers' institutes.—During the year 45 farmers' institutes were held, with an attendance of 5,846 men and 2,942 women, a total of 8,788.

Three short courses, totaling 19 sessions for men and 27 sessions for women, were held, with an attendance of 1,143 men and 1,096 women.

Teachers' institutes.—Thirteen teachers' institutes were held, composed of 34 sessions, attended by 3,151 people. These institutes were conducted to assist teachers of agriculture in the schools. The extension director reports that there were more calls for these institutes than the present extension force could attend.

OTHER FORMS OF EXTENSION WORK.

A wool-demonstration car was run during the year in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture, which provided a wool specialist and an exhibit. The extension division provided 12 sheep of various breeds and one man as assistant. The object of this work was to give assistance and advice to sheepmen and encourage better methods of grading wool and handling sheep. The car was run 36 days, making 24 stops, and reaching 2,720 people.

OUTLOOK.

The plan of organization has continued without change and the development of the work in every line has been such as seemed best to meet the needs of the State. County-agent work has shown a marked growth, not only in the number of counties employing agents but in the development of projects. In the sparsely settled counties difficulties are encountered in securing organized action. With the support being given by the granges and farmers' unions and through the organization of local groups of farmers for special purposes, satisfactory progress is being made. The club work is capable of considerable development, and with the necessary local leadership provided these groups should become important centers of influence in their respective communities.

The live-stock instruction seems to have been confined largely to the dairy interests. The State being in the transition stage from ranching to farming, many problems naturally present themselves for solution. The construction of silos, the growth of forage crops, the control of animal diseases, the improvement of the quality of live stock, and better marketing conditions are subjects demanding immediate attention.

FARMERS' INSTITUTES IN THE UNITED STATES IN 1916.

By J. M. STEDMAN, *Farmers' Institute Specialist.*

INTRODUCTION.

During the fiscal year ending June 30, 1916, farmers' institutes were officially in charge of the extension division of the agricultural colleges in 31 States, and in the remaining 17 States they were still in charge of the State itself. In Kentucky the institute was officially transferred from the State board of agriculture to the extension division of the agricultural college on January 1, 1916. Each held institutes during its half of the fiscal year, and they are so indicated in the statistical tables. During the year the State board of agriculture of North Carolina also officially transferred its farmers' institute activities to the extension division of the agricultural college. The college, however, did not conduct farmers' institutes, while the State board of agriculture held institutes as heretofore. In the statistical tables showing State activities, therefore, the institutes in North Carolina are classed as a State activity, although officially they should not be so regarded.

It should be noted that movable schools, railroad instruction trains, work with young people either within the schools or without, and home-economics work with women are not regarded by the colleges as farmers' institute work, and are, therefore, not reported by them while these activities are still conducted as a part of the institute work carried on by the States. These activities are, however, being rapidly abandoned by the State farmers' institutes. New York, North Carolina, and Rhode Island were the only States that held women's institutes, and these are tabulated as regular institutes. It should be noted, however, that practically all institutes are open to both men and women, and that some women speakers are employed by most of the States. Only New York and Texas ran railroad instruction trains, while Pennsylvania alone held movable schools as a State farmers' institute activity. There were 3 such schools, with a total of 14 days' duration and an attendance of 5,297. These are tabulated as a part of its regular institutes. None of the States held young people's institutes during the year.

GENERAL STATISTICS OF FARMERS' INSTITUTES.

Of the 17 States still in official charge of farmers' institutes, three (Louisiana, Maine, and Virginia) have not reported. The 14 States

reporting, together with North Carolina, held a total of 4,485 regular institutes, lasting 4,851 days, embracing 9,225 sessions, with an attendance of 1,111,577. In addition, the miscellaneous institutes consisted of 1,558 sessions, with 331,226 in attendance. The grand total for all forms of State institutes is, therefore, 10,783 sessions, with 1,442,803 people in attendance. The State farmers' institutes employed during the year 644 lecturers, of which number 225 were from the agricultural colleges and experiment stations, and they contributed a total of 621 days to the work. The total State appropriations for institute work were \$127,459.87, while other funds were used to the amount of \$51,786.72.

Of the 31 States in which the farmers' institutes are officially in charge of the extension division of the agricultural colleges, one (California) has not reported, and six (New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, and South Dakota) did not hold institutes. The 24 States reporting as having conducted farmers' institutes held in all 4,707 institutes, lasting 5,935 days, with a total of 12,461 sessions, at which there were 1,504,876 people in attendance. The extension divisions employed 952 lecturers in their institute work, of which number 609 were not on the extension staffs. State funds to the amount of \$153,572.22 and other funds aggregating \$37,691.55 were used in conducting the institutes.

The entire farmers' institute work during the fiscal year 1916 consisted of 9,192 institutes, lasting 10,786 days, with a total of 23,244 sessions, at which there were 2,947,679 people in attendance. There were employed in this work 1,596 lecturers, of which number 1,028 were not connected with the agricultural college or experiment stations, while 568 were employees of these institutions. State funds to the amount of \$281,032.09 were appropriated for institute work and other funds amounting to \$89,388.27 were also expended. With an available fund of \$370,420.36, the farmers' institutes instructed nearly 3,000,000 people.

More detailed information respecting the farmers' institute work in each State may be obtained by studying the tables accompanying this report.

THE DIVISION OF FARMERS' INSTITUTES.

This division of the States Relations Service continued to aid all farmers' institute workers along the same lines as heretofore. The various syllabi of lectures, each accompanied with about 50 lantern slides, were in greater demand than could be accommodated even though 16 duplicate sets of the more popular ones were available. Five new lectures were added during the year and several others were prepared and are being published. Each of these lectures is a con-

densed résumé of the best available information on the subject with which it deals. The 50 lantern slides accompanying each of the lectures have been revised and are a great improvement over the older series. Whenever it adds to the teaching value, such slides are being colored.

AGRICULTURAL-EXTENSION WORK IN FOREIGN COUNTRIES.

Owing to the European war all agricultural-extension work in Europe has either ceased entirely or, if conducted at all, has not been reported in any of the foreign publications.

STATE REPORTS.

Several items of interest showing the progress of farmers' institute work, but which are incapable of tabulation, appear in the reports of the directors from those States in which the farmers' institute is directly conducted by the State. In order that these features may be known by the body of workers, the principal points are noted in the following account under the names of the respective States:

Illinois.—A field worker is employed throughout the year to assist the various local farmers' clubs and organizations.

Massachusetts.—Leaflets containing questions on the subject to be discussed at institutes are distributed in advance.

Missouri.—The director reports an "increasing interest and demand for institutes. Never has so much concern been shown."

New York.—A dairy demonstration agent is employed throughout the year to work with the dairy-improvement association, which now has 46 local branches, with 23,968 cows. The attendance at the women's institutes greatly increased over the previous year in spite of stormy weather, bad roads, and sickness, which reduced by 10 the average attendance at the farmers' institutes over the previous year. Four important reports were published during the year, continuing the previous plan of issuing a rather exhaustive handbook on a specific agricultural subject or group. A demonstration auto truck was used in two counties in places away from the railroads. An additional woman correspondent has also been added to the institute force.

Pennsylvania.—Twelve farm advisors are regularly employed in the field, whose duty it is to personally counsel and advise with the farmers of the State along their different agricultural problems. This service is free to the farmers, except they are expected to entertain advisors when with them as well as convey them from and to the railroad station.

STATISTICS.

Farmers' institute work conducted by the States, 1916.

State.	Regular institutes.				Miscellaneous institutes.				Grand total, all forms of institutes.		
	Total number of institutes.	Total number of days of institutes.	Total number of sessions.	Attend-ance.	Railroad specials.		Round-up, independent, and other special institutes.	Attend-ance.			
					Stops.	Attend-ance.				Number of sessions.	Attend-ance.
Alabama.....	19	19	31	1,835	.....	.....	54	935	85	2,770
Delaware.....	38	50	111	16,187	.....	.....	.....	.....	111	16,187
Illinois.....	225	400	1,042	202,494	.....	.....	14	7,000	1,056	209,494
Iowa.....	93	.....	810	157,214	.....	.....	.....	.....	810	157,214
Kentucky ¹	66	106	212	9,232	.....	.....	8	1,500	220	10,732
Louisiana ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maine ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	83	95	211	26,915	.....	.....	.....	.....	211	26,915
Massachusetts.....	111	111	130	14,544	.....	.....	14	2,700	144	17,244
Missouri.....	436	653	763	170,888	.....	.....	.....	.....	763	170,888
New Hampshire.....	36	.....	44	3,060	.....	.....	.....	.....	44	3,060
New Jersey.....	66	69	167	12,567	.....	.....	14	4,200	181	16,767
New York.....	336	382	1,093	78,352	38	2,762	174	15,969	1,305	97,083
North Carolina ³	206	1,024	60,570	30	2,142	1,054	62,712
Pennsylvania.....	227	435	1,027	161,266	59	18,715	1,086	179,981
Rhode Island.....	56	57	60	2,927	7	1,200	67	4,127
Texas.....	2,474	2,474	2,474	193,526	12	1,000	1,134	273,103	3,620	467,629
Vermont.....	13	26	(⁴)	26	(⁴)
Virginia ²
Total.....	4,485	4,851	9,225	1,111,577	50	3,762	1,508	327,464	10,783	1,442,803	

¹ First half year.

² No report.

³ Officially college activity.

⁴ No data.

Farmers' institute work conducted by the State, 1916.

State.	Number of lecturers.				Amount of State appropriations used for institute work.	Other funds used.	Annual reports.	
	From colleges and stations.	From other sources.	Total number.	Days contributed by college and station lecturers.			Published.	Number of copies.
Alabama.....		20	20		\$600.00			
Delaware.....	10	14	24	52	1,300.00			
Illinois.....	44	140	184	176	26,710.00	\$10,270.00	Yes.	50,000
Iowa.....	61		61	61	5,444.00	22,395.07		
Kentucky ¹		8	8		5,445.54		Yes.	3,000
Louisiana ²								
Maine ²								
Maryland.....	4	12	16	10	6,000.00			
Massachusetts.....	28	70	98	22	6,000.00			
Missouri.....		4	4		11,500.00			
New Hampshire.....	10	12	22	10	2,000.00		Yes.	1,500
New Jersey.....	28	45	73	173	3,200.00	50.00		
New York.....	18	18	36	45	25,000.00	196.00	Yes.	12,000
North Carolina ³			(⁴)			(⁴)		
Pennsylvania.....	10	52	62	60	20,000.00			
Rhode Island.....	12		12	12	800.00			
Texas.....		18	18		13,000.00	18,875.65	Yes.	20,000
Vermont.....		6	6		460.33			
Virginia ²								
Total.....	225	411	644	621	127,459.87	51,786.72	.....	86,500

¹ First half year.² No report.³ Officially college activity.⁴ No data.*Farmers' institute work conducted by the extension departments of the agricultural colleges, 1916.*

State.	Number of institutes.	Total number of days of institutes.	Total number of sessions.	Total attendance.	Number of lecturers.			Amount of State appropriation used for institutes.	Other funds used.
					From extension staff.	From outside sources.	Total number.		
Arizona.....	8	14	34	589	10	7	17	\$589.35	\$576.60
Arkansas.....	458	260	640	43,461	17	7	24	(¹)	
California ²									
Colorado.....	53	119	297	19,990	15	12	27	1,000.00	1,060.00
Connecticut.....	31	31	59	2,179	12	18	30	1,136.99	
Florida.....	110	87	163	12,713	13	86	99	10,000.00	
Georgia.....	61	61	122	12,617	19	5	24	1,250.00	1,000.00
Idaho.....	148	262	377	22,681	14	17	31	(¹)	
Indiana.....	496	652	1,515	276,013	6	33	39	11,092.79	20,963.28
Kansas.....	350	465	922	85,344	22	13	35	9,770.00	2,400.00
Kentucky ³	24	72	150	7,500	10	5	15		500.00
Michigan.....	588	683	1,568	179,200	12	30	42	9,000.00	
Minnesota.....	75	110	202	31,421		21	21	3,532.60	
Mississippi.....	201	212	238	55,436	21	40	61	9,000.00	
Montana.....	161		216	21,334	38	21	59	10,000.00	
Nebraska.....	125	150	375	30,000	20	30	50	5,000.00	7,500.00
Nevada.....	6	8	12	854	5		5	156.00	
New Mexico ⁴									
North Carolina ⁴									
North Dakota.....	58	98	181	13,824	1	9	10	4,706.44	1,115.00
Ohio.....	424	848	2,120	413,062	1	51	52	34,611.00	
Oklahoma ⁴									
Oregon ⁴									
South Carolina ⁴									
South Dakota ⁴									
Tennessee.....	3	9	21	7,400	36	81	117	1,101.23	1,206.67
Utah.....	902	1,027	1,349	110,538	21	72	93	10,000.00	1,000.00
Washington.....	44	90	132	22,000	7	17	24	3,399.25	280.00
West Virginia.....	127	247	687	47,653	22	12	34	7,387.00	
Wisconsin.....	198	367	903	79,279	18	12	30	20,000.00	
Wyoming.....	55	63	178	6,788	3	10	13	849.57	
Total.....	4,707	5,935	12,461	1,504,876	343	609	952	153,572.22	37,601.55

¹ No data.² No report.³ Last half year.⁴ No institutes held.

Expenditures for cooperative agricultural extension for the year ended June 30, 1916, by items of expense.

EXPENDITURES FROM THE UNITED STATES APPROPRIATION OF MAY 8, 1914 (FEDERAL SMITH-LEVER).

State.	Amount of appropriation.	Salaries.	Labor.	Publications.	Stationery and small printing.	Postage, telegraph, telephone, freight, and express.	Heat, light, water, and power.	Supplies.	Library.	Tools, machinery, and appliances.	Furniture and fixtures.	Scientific apparatus and specimens.	Live stock.	Traveling expenses.	Contin- gent ex- penses.	Unex- pended bal- ance.
Alabama.....	\$31,491.82	\$17,356.90	\$889.57	\$1,123.48	\$666.67	\$578.59	\$231.30	\$892.49	\$75.77	\$284.92	\$925.55	\$90.50	.....	\$8,375.08	\$1.00	.....
Arizona.....	11,715.47	7,618.12	7.15	529.33	349.81	149.09	.50	170.82	.....	25.66	404.85	.50	.....	2,459.64	.....	.....
Arkansas.....	26,678.41	20,677.06	62.90	23.50	406.68	181.44	.....	229.08	.....	.....	152.45	.....	.....	4,938.40	6.90	.....
California.....	21,037.45	15,227.48	499.00	.....	222.13	91.08	.....	286.56	.....	1,561.20	35.35	.....	.....	3,099.65	15.00	.....
Colorado.....	14,792.62	8,097.23	304.81	146.44	762.65	417.56	.....	281.56	.....	10.79	581.80	229.62	.....	3,960.16	.....	.....
Connecticut.....	11,397.20	7,838.87	37.46	95.00	66.17	39.61	.....	91.40	.....	98.14	164.56	42.75	.....	2,873.23	.....	\$0.01
Delaware.....	11,279.51	8,853.90	23.51	101.80	26.40	269.30	12.15	162.41	.....	48.14	80.75	7.65	.....	1,647.30	46.20	.....
Florida.....	16,486.94	11,248.55	20.15	612.62	63.76	87.16	.....	150.47	.....	.....	1,625.56	105.20	.....	2,573.47	.....	.....
Georgia.....	35,173.47	20,376.13	600.49	1,500.00	485.73	797.31	481.42	1,617.41	10.50	1,027.91	1,145.50	180.49	.....	6,950.58	.....	.....
Idaho.....	13,108.84	5,054.52	299.55	535.90	225.80	255.86	20.60	247.85	16.88	109.99	73.35	20.60	.....	6,192.19	55.75	.....
Illinois.....	36,282.20	27,217.05	309.20	437.17	573.45	1,107.67	.....	227.20	27.41	3,777.27	722.13	.....	.....	1,883.65	.....	.....
Indiana.....	28,931.02	20,894.77	2.40	462.08	781.79	72.11	.95	347.28	.....	18.93	436.37	126.60	.....	5,787.74	.....	.....
Iowa.....	28,781.18	25,841.56	1,416.88	1,387.18	.....	.....	.....	.....	.....	.....	135.56	.....	.....	.....	.....	.....
Kansas.....	24,555.45	22,265.12	45.00	.....	.95	.....	.....	.....	.....	.....	.....	.....	.....	2,244.38	.....	.....
Kentucky.....	31,088.17	19,429.19	26.15	1,583.71	979.40	7.10	.....	750.45	251.88	28.43	1,396.25	813.55	.....	4,801.94	.....	1,020.12
Louisiana.....	24,102.11	15,273.14	107.90	1,297.32	756.45	170.06	50.00	1,094.56	.....	16.78	615.60	13.10	.....	4,706.20	1.00	.....
Maine.....	14,388.28	8,772.57	33.85	331.86	327.87	168.89	2.40	158.14	43.22	234.47	720.01	181.38	.....	3,413.62	.....	.....
Maryland.....	17,746.73	11,882.46	286.79	514.86	447.70	398.97	.....	176.00	105.94	53.62	488.38	537.07	.....	2,748.59	.....	106.35
Massachusetts.....	12,930.75	8,460.24	142.47	532.98	261.98	36.75	.....	40.95	.....	.....	5.56	.....	.....	3,449.82	.....	.....
Michigan.....	28,032.37	28,032.37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Minnesota.....	24,898.99	17,477.53	4.25	.....	5.90	150.05	.....	65.61	.....	2.73	.....	.....	.....	7,188.14	4.78	.....
Mississippi.....	29,329.35	18,909.18	344.70	615.30	565.59	626.30	.....	391.43	2.96	.....	618.36	84.00	.....	7,128.53	43.00	.....
Missouri.....	33,034.17	24,885.00	1,115.50	623.50	1,047.37	858.90	.....	528.65	.....	293.58	214.03	14.80	.....	3,452.84	.....	.....
Montana.....	12,950.01	10,238.26	158.10	329.70	727.27	66.05	2.65	57.65	.....	.....	53.50	16.11	.....	1,280.72	.....	.....
Nebraska.....	20,715.89	12,316.46	1,093.69	747.96	1,034.03	410.17	.....	608.14	125.00	294.37	859.55	5.00	.....	3,106.36	115.16	.....
Nevada.....	10,832.94	7,900.55	13.70	256.74	490.70	45.04	.....	259.59	5.75	295.05	70.80	139.24	\$5.00	1,350.78	.....	.....
New Hampshire.....	12,133.46	8,497.36	115.65	.....	274.64	88.60	.....	128.53	3.38	5.50	1.95	2.00	.....	3,032.85	10.00	.....
New Jersey.....	17,659.22	10,392.28	168.90	768.60	583.88	525.61	.....	380.74	27.30	61.45	443.03	18.68	.....	4,257.75	16.90	14.10
New Mexico.....	13,413.20	6,311.68	169.19	670.00	430.98	147.19	1.50	7.15	27.89	34.75	492.59	39.78	10.00	5,070.50	.....	.....
New York.....	33,442.72	23,828.28	2,301.90	.....	570.61	600.16	.....	706.68	2.80	16.75	182.60	110.13	.....	5,112.81	10.00	.....
North Carolina.....	32,952.65	19,990.53	1,104.22	2,034.50	1,623.81	566.49	3.75	530.55	73.85	104.80	1,257.25	279.83	.....	5,383.07	.....	.....
North Dakota.....	16,247.19	15,756.69	122.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	368.00	.....	.....
Ohio.....	35,556.54	22,711.88	391.33	1,222.42	1,297.47	162.71	2.15	799.84	13.18	34.41	747.01	71.54	.....	7,170.25	31.00	901.35
Oklahoma.....	26,255.69	22,798.20	.....	1,299.88	641.55	.....	.....	151.55	10.80	.....	555.70	100.00	.....	667.86	.....	30.15
Oregon.....	14,446.36	8,765.95	188.50	664.94	194.82	36.79	.....	94.20	.....	16.67	.....	.....	.....	4,484.49	.....	.....
Pennsylvania.....	46,893.75	36,989.41	298.53	1,055.71	792.47	308.20	.....	297.14	1.67	99.60	847.42	85.38	.....	6,118.22	.....	.....

Rhode Island.....	10, 218.31	8, 342.98	88.60	.....	43.28	41.65	.....	16.37	.....	29.50	15.76	23.63	.....	1, 616.54
South Carolina.....	25, 691.15	15, 982.06	199.60	1, 236.95	278.05	285.40	.....	147.28	24.25	31.51	500.74	2.14	.....	7, 003.17
South Dakota.....	16, 166.89	9, 947.12	275.55	24.50	627.59	108.92	.....	29.99	.....	58.62	938.57	292.93	.....	3, 863.10
Tennessee.....	31, 201.01	17, 176.40	1, 175.33	.....	1, 060.71	574.48	139.56	95.76	296.99	84.00	2, 243.82	147.20	37.75	8, 152.56	
Texas.....	45, 969.67	20, 740.28	171.70	1, 852.15	2, 859.31	447.17	18.50	363.63	20.50	164.18	3, 099.72	9.38	.....	16, 218.96	
Utah.....	12, 436.74	7, 138.94	540.82	84.44	216.40	120.37	.....	139.99	3.55	64.10	129.45	.....	.....	3, 998.68
Vermont.....	12, 273.77	7, 057.19	301.14	383.72	580.89	381.39	.....	434.36	97.77	60.86	265.70	140.24	.....	2, 570.51
Virginia.....	29, 271.96	22, 798.76	3.07	307.55	710.10	58.08	.....	234.86	.....	.....	783.56	135.00	.....	4, 240.63
Washington.....	16, 522.46	8, 820.25	935.62	635.99	474.40	398.18	.....	153.48	2.00	7.50	106.12	94.60	.....	4, 894.32
West Virginia.....	22, 071.73	15, 997.10	.....	360.00	636.97	.....	.....	.....	.....	.....	223.79	.....	.....	4, 853.87
Wisconsin.....	26, 164.99	19, 694.17	156.22	958.00	359.42	141.45	1.20	1, 464.57	.....	113.60	36.78	174.82	.....	3, 063.76
Wyoming.....	11, 249.20	6, 633.03	27.35	519.99	238.86	176.16	.....	105.51	32.09	35.67	28.40	81.75	.....	3, 329.54
Total.....	1, 080, 000.00	738, 584.75	16, 580.89	27, 867.77	25, 745.46	12, 154.06	968.63	15, 117.88	1, 303.33	9, 205.45	24, 425.78	4, 417.19	52.75	201, 084.45	415.34	2, 076.27

EXPENDITURES BY THE STATES (STATE SMITH-LEVER).

Alabama.....	\$21, 491.82	\$18, 433.02	\$479.56	.....	\$136.05	\$139.51	\$263.25	.....	\$143.58	.....	\$178.70	\$9.90	.....	\$1, 844.30	.....	.....
Arizona.....	1, 715.47	496.94	.....	.....	\$136.05	110.30	.....	.....	23.09	.....	133.60	.....	.....	815.39	.....	.....
Arkansas.....	16, 678.41	11, 953.11	135.50	.....	2, 118.50	349.40	441.25	\$166.26	451.88	\$16.00	88.70	56.56	.....	.....	\$8.02	.....
California.....	11, 037.45	8, 405.97	457.67	.....	.....	193.58	78.80	.....	29.77	.....	.....	.....	.....	1, 871.66	.....	.....
Colorado.....	4, 792.62	2, 963.18	131.62	.....	191.00	5.61	36.51	.....	104.73	.....	.....	2.50	.....	1, 086.11	.....	.....
Connecticut.....	1, 379.20	1, 278.19	.....	.....	119.00	18.75	17.06	.....	.....	.....	.....	.....	.....	.....	.....	\$0.01
Delaware.....	1, 297.51	671.03	.....	.....	.....	.....	.....	.....	14.33	.....	.....	.....	.....	.....	.....	.....
Florida.....	6, 486.94	5, 919.62	.....	.....	.....	.....	.....	.....	.....	.....	46.69	.....	.....	558.34	.....	.....
Georgia.....	25, 173.47	15, 600.68	121.89	.....	1, 500.00	527.18	79.30	.....	622.35	.....	1, 204.00	.....	.....	520.63	.....	.....
Idaho.....	3, 108.84	2, 810.00	.....	.....	100.00	.....	46.69	.....	.....	.....	.....	.....	.....	4, 758.80	.....	.....
Illinois.....	26, 282.20	26, 282.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	151.65	.....	.....
Indiana.....	18, 931.02	18, 931.02	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	18, 781.18	14, 195.68	3, 493.18	.....	917.18	.....	.....	.....	.....	.....	175.14	.....	.....	.....	.....	.....
Kansas.....	14, 555.45	11, 466.67	159.18	.....	.....	.....	38.85	.....	39.73	.....	.....	28.80	.....	2, 791.90	.....	.....
Kentucky.....	21, 088.17	18, 056.08	375.40	.....	.....	45.80	187.23	.....	97.16	.....	22.00	.....	.....	994.52	7.00	1, 020.12
Louisiana.....	14, 102.11	6, 175.61	109.20	.....	133.60	140.68	165.31	50.00	368.53	.....	722.14	.....	.....	6, 230.11	.....	.....
Maine.....	4, 388.28	3, 133.30	2.00	.....	.....	7.45	49.11	1.50	29.14	.....	10.70	.....	.....	1, 128.53	.....	.....
Maryland.....	7, 746.73	5, 694.92	.....	.....	228.39	.....	.....	.....	.....	.....	.....	17.50	.....	1, 699.57	.....	106.35
Massachusetts.....	2, 930.75	1, 965.47	45.00	.....	16.50	81.66	30	.....	46.70	.....	.....	.....	.....	775.12	.....	.....
Michigan.....	18, 032.37	3, 415.05	1, 803.35	.....	781.87	1, 086.91	278.07	.....	980.93	1.60	566.91	252.44	.....	8, 865.24	.....	.....
Minnesota.....	14, 898.99	14, 898.99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mississippi.....	19, 329.35	19, 329.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Missouri.....	23, 034.17	13, 539.33	1, 042.23	.....	657.46	1, 237.98	804.53	.....	1, 149.02	1.25	159.39	152.83	.....	4, 060.67	.....	.....
Montana.....	2, 950.01	2, 950.01	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	10, 715.89	10, 050.60	13.05	.....	.....	.....	.....	.....	5.25	.....	.....	.....	.....	.....	.....	.....
Nevada.....	832.94	68.19	6.50	.....	24.50	.....	27.45	.....	76.31	1.40	8.30	29.63	.....	646.99	2.00	.....
New Hampshire.....	2, 133.46	859.00	102.68	.....	310.85	220.44	46.04	1.75	91.11	.....	3.50	43.20	.....	588.66	3.00	.....
New Jersey.....	7, 659.22	7, 378.46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	264.69	266.66	14.10
New Mexico.....	3, 413.20	2, 674.91	.....	.....	92.26	.....	.....	.....	.....	.....	.....	.....	.....	646.03	.....	.....
New York.....	23, 442.72	19, 796.64	87.05	.....	288.25	261.87	256.08	.....	121.47	2.00	92.22	25.92	.....	2, 440.90	.....	.....
North Carolina.....	22, 952.65	20, 202.44	121.12	.....	.....	216.88	218.95	2.60	414.21	1.00	48.08	325.98	.....	1, 401.39	.....	.....
North Dakota.....	6, 247.19	3, 504.10	122.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2, 620.59	.....	.....

Expenditures for cooperative agricultural extension for the year ended June 30, 1916, by items of expense—Continued.

EXPENDITURES BY THE STATES (STATE SMITH-LEVER)—Continued.

State.	Amount of appropriation.	Salaries.	Labor.	Publications.	Stationery and small printing.	Postage, telegraph, telephone, freight, and express.	Heat, light, water, and power.	Supplies.	Library.	Tools, machinery, and appliances.	Furniture and fixtures.	Scientific apparatus and specimens.	Live stock.	Traveling expenses.	Contingent expenses.	Unexpended balance.
Ohio.....	\$25,556.54	\$23,570.66				\$7.54		\$0.20			\$1.50			\$1,071.95	\$3.34	\$901.35
Oklahoma.....	16,255.69	14,092.59	\$79.19	\$200.00				179.52						1,674.24		30.15
Oregon.....	4,446.36	4,446.36														
Pennsylvania.....	36,893.75	13,649.47	315.51	1,407.41	\$2,625.75	1,160.94		1,020.63	\$135.46		344.72	\$147.76		15,082.38	1,003.72	
Rhode Island.....	218.31			124.00	11.35			.12						82.84		
South Carolina.....	15,691.15	12,610.55		738.10	76.08	5.66					133.00			2,127.76		
South Dakota.....	6,166.89	4,302.62	83.63		363.62	296.92		6.10	18.50	\$14.95	196.55			869.00	15.00	
Tennessee.....	21,201.01	8,836.35	161.80	2,620.10	5,029.71	80.11	\$0.30	896.85	3.00	312.96	881.79	164.83		2,182.21	11.00	
Texas.....	35,969.67	25,210.06	1,077.92	2,066.20	119.06	481.15	.75	6.50	20.50	215.00	1,357.64			5,410.70		4.19
Utah.....	2,436.74	1,970.04	3.06	112.89				4.45		22.28	25.68			298.34		
Vermont.....	2,273.77	1,885.95			26.18	7.41		6.50						347.73		
Virginia.....	19,271.96	17,269.53		262.29	115.90	29.08		82.51			143.16			1,361.99	7.50	
Washington.....	6,522.46	5,899.00	52.00	51.94	83.04	17.98		.35			7.70			410.45		
West Virginia.....	12,071.73	8,436.66			417.45			319.89	2.79	7.35	202.49	9.45		2,675.65		
Wisconsin.....	16,164.99	8,841.01	50.60		73.97	226.37	.12	385.52	4.90	131.40	8.05	58.03		6,380.99	4.00	
Wyoming.....	1,249.20	698.00			201.20	50.00								300.00		
Total.....	600,000.00	444,838.61	10,632.39	15,198.34	13,787.31	5,397.94	223.28	7,718.43	208.40	2,210.66	8,339.73	999.38		87,038.02	1,331.24	2,076.27

EXPENDITURES FROM THE UNITED STATES APPROPRIATION OF MAY 8, 1914, AND BY THE STATES (STATE AND FEDERAL SMITH-LEVER).

State.	Amount of appropriation.	Salaries.	Labor.	Publications.	Stationery and small printing.	Postage, telegraph, telephone, freight, and express.	Heat, light, water, and power.	Supplies.	Library.	Tools, machinery, and appliances.	Furniture and fixtures.	Scientific apparatus and specimens.	Live stock.	Traveling expenses.	Contingent expenses.	Unexpended balance.
Alabama.....	\$52,983.64	\$35,789.92	\$1,369.13	\$1,123.48	\$806.18	\$841.84	\$231.30	\$1,036.07	\$75.77	\$284.92	\$1,104.25	\$100.40		\$10,219.38	\$1.00	
Arizona.....	13,430.94	8,115.06	7.15	665.38	460.11	149.09	.50	193.91		25.76	538.45	.50		3,275.03		
Arkansas.....	43,356.82	32,630.17	198.40	2,142.00	756.08	622.69	166.26	680.96	16.00	88.70	1,045.68	56.56		4,938.40	14.92	
California.....	32,074.90	23,633.45	956.67		415.71	169.88		316.33		1,561.20	35.35			4,971.31	15.00	
Colorado.....	19,585.24	11,060.41	436.43	337.44	768.26	454.07		386.29		10.79	853.16	232.12		5,046.27		
Connecticut.....	12,794.40	9,167.06	37.46	214.00	66.17	39.61		91.40		98.14	164.56	42.75		2,873.23		\$0.02
Delaware.....	12,559.02	9,524.93	23.51	101.80	45.15	286.36	12.15	176.74		48.14	80.75	7.65		2,205.64	46.20	
Florida.....	22,973.88	17,168.17	20.15	612.62	63.76	87.16		150.47			1,672.25	105.20		3,094.10		
Georgia.....	60,346.94	35,976.81	722.38	3,000.00	1,012.91	876.61	481.42	2,239.76	10.50	1,787.18	2,349.50	180.49		11,709.38		
Idaho.....	16,217.68	7,864.52	299.55	635.90	225.80	302.55	20.60	247.85	16.88	110.49	73.35	20.60		6,343.84	55.75	
Illinois.....	62,564.40	53,499.25	309.20	437.17	573.45	1,107.67		227.20	27.41	3,777.27	722.13			1,883.65		
Indiana.....	47,862.04	39,825.79	2.40	462.08	781.79	72.11	.95	347.28		18.93	436.37	126.60		5,787.74		

[illegible]

Expenditures for cooperative agricultural extension for the year ended June 30, 1916, by projects.

EXPENDITURES FROM THE UNITED STATES APPROPRIATION OF MAY 8, 1914 (FEDERAL SMITH-LEVER).

State.	Total.	Adminis- tration.	Printing and distri- bution of publica- tions.	County agents.	Home economics.	Extension schools.	Boys' 'and girls' clubs. ¹	Pig clubs.	Poultry clubs.	Animal husbandry.	Poultry.	Dairying.
Alabama.....	\$31,491.82	\$5,872.00	\$1,123.48	\$3,558.08	\$8,550.50	\$2,198.57	\$496.40	\$1,191.27	.....	\$846.85	.....	\$1,273.61
Arizona.....	11,715.47	4,795.86	529.33	1,682.15	434.57	194.32	1,158.10	.....	.....	2,540.34	.....	.....
Arkansas.....	26,678.41	6,866.46	23.50	6,993.61	2,782.87	.....	.....	487.09	.....	.....	.....	.....
California.....	21,037.45	2,594.06	.....	15,069.57	1,763.86	.....	1,609.96	.....	.....	.....	.....	.....
Colorado.....	14,792.62	6,344.32	146.44	6,024.53	8.97	.....	1,290.97	.....	.....	.....	.....	.....
Connecticut.....	11,397.19	3,104.22	95.00	3,442.06	.....	.....	1,210.57	.....	.....	.....	\$1,912.10	1,399.20
Delaware.....	11,279.51	1,882.50	101.80	7,039.37	1,808.11	.....	.....	.....	.....	.....	.....	.....
Florida.....	16,486.94	3,797.55	612.62	5,230.46	4,601.76	.....	1,646.00	.....	.....	.....	.....	.....
Georgia.....	35,173.47	5,899.47	1,500.00	6,474.00	11,070.84	2,500.00	.....	800.00	.....	2,149.16	.....	598.55
Idaho.....	13,108.84	1,519.24	535.90	6,137.91	1,491.34	.....	1,658.77	.....	.....	588.32	.....	1,380.00
Illinois.....	36,282.20	2,039.60	437.17	13,371.40	11,307.94	.....	.....	.....	.....	.....	2,393.42	1,950.52
Indiana.....	28,931.02	3,238.49	462.08	1,340.54	3,799.48	1,500.00	2,453.56	.....	.....	.....	.....	.....
Iowa.....	28,781.18	6,135.56	1,387.18	3,491.56	5,000.00	2,442.38	1,050.00	.....	.....	750.00	1,329.11	1,050.00
Kansas.....	24,555.45	2,696.37	.....	1,997.40	5,288.31	2,650.00	1,903.10	.....	.....	394.12	.....	.....
Kentucky.....	30,068.05	6,840.46	1,583.71	8,345.15	7,177.10	98.40	600.00	723.01	577.37	.....	.....	.....
Louisiana.....	24,102.11	3,327.96	1,297.32	4,897.18	3,469.89	.....	6,201.07	.....	.....	.....	1,304.27	.....
Maine.....	14,388.28	2,151.52	331.86	6,269.41	1,424.00	565.85	.....	.....	.....	729.90	349.92	1,382.99
Maryland.....	17,640.38	3,163.99	514.86	1,638.20	3,795.08	251.70	1,464.23	.....	.....	748.55	2,437.22	1,018.91
Massachusetts.....	12,930.75	.....	532.98	1,973.00	2,754.27	538.57	944.83	.....	.....	353.80	.....	.....
Michigan.....	28,032.37	2,421.60	.....	14,888.34	2,663.06	.....	566.70	.....	.....	.....	.....	.....
Minnesota.....	24,898.99	.....	.....	5,278.49	6,284.22	1,730.88	2,478.95	.....	.....	2,470.67	.....	.....
Mississippi.....	29,329.35	3,673.18	615.30	4,461.45	10,017.57	7,409.50	5,033.11	.....	.....	.....	.....	.....
Missouri.....	33,034.17	6,167.44	623.50	5,511.15	2,149.05	.....	300.00	.....	.....	1,000.00	.....	.....
Montana.....	12,950.01	3,359.61	329.70	6,288.18	2,253.60	.....	1,125.00	.....	.....	1,346.46	.....	.....
Nebraska.....	20,715.89	2,943.62	747.96	.....	968.44	3,383.24	2,645.46	.....	.....	.....	.....	1,161.37
Nevada.....	10,832.94	2,334.60	256.74	.....	.....	.....	.....	.....	.....	.....	.....	1,878.36
New Hampshire.....	12,133.46	333.46	.....	4,121.64	1,600.00	.....	.....	.....	.....	.....	2,405.71	.....
New Jersey.....	17,645.12	3,133.40	768.60	2,250.23	3,412.83	.....	62.95	.....	.....	.....	.....	807.14
New Mexico.....	13,413.20	4,015.25	670.00	2,012.47	2,136.94	1,348.37	2,136.71	.....	.....	.....	1,366.62	.....
New York.....	33,442.72	1,796.10	.....	5,350.00	1,850.00	3,277.48	1,500.00	.....	.....	3,600.00	.....	.....
North Carolina.....	32,952.65	3,047.96	2,034.50	2,057.50	8,020.02	.....	5,008.86	.....	.....	1,500.00	.....	3,143.28
North Dakota.....	16,247.19	.....	.....	13,777.74	1,999.45	.....	75.00	.....	.....	.....	.....	591.67
Ohio.....	34,655.19	4,173.43	1,222.42	11,834.62	4,107.50	5,039.80	2,482.76	.....	.....	.....	.....	.....
Oklahoma.....	26,225.54	1,561.90	1,299.88	13,723.94	6,883.79	506.03	750.00	.....	.....	.....	.....	.....
Oregon.....	14,446.36	1,558.24	664.94	.....	801.27	5,113.17	1,452.89	.....	.....	.....	.....	.....
Pennsylvania.....	46,893.75	3,088.78	1,055.71	33,781.66	.....	100.76	.....	.....	.....	.....	.....	5,355.93
Rhode Island.....	10,218.31	2,850.98	.....	1,302.24	1,839.41	.....	1,102.66	.....	.....	.....	1,767.47	1,250.64
South Carolina.....	25,691.15	3,477.69	1,236.95	9,714.56	4,514.06	.....	.....	.....	.....	741.58	1,086.37	1,187.81
South Dakota.....	16,166.89	3,364.98	24.50	7,275.72	.....	5.12	1,367.07	.....	.....	725.84	.....	.....

Tennessee.....	31,201.01	15,332.69	.....	2,450.00	4,809.44	1,146.27	.....	1,128.58	1,752.02	.....	1,324.96
Texas.....	45,965.43	10,322.38	1,852.15	3,797.28	7,405.88	13,698.00	1,775.48	.....	.....	.....	3,250.33
Utah.....	12,436.74	3,015.79	84.44	5,034.98	1,539.36	.....	1,588.13	.....	.....	.....	273.69
Vermont.....	12,273.77	3,717.91	383.72	2,200.57	1,658.14	1,917.84	877.52	.....	.....	.....	2.10
Virginia.....	20,271.96	5,131.30	307.55	9,955.92	7,913.27	.....	.....	647.27	1,207.57	.....	280.00
Washington.....	16,522.46	3,710.93	635.99	1,494.50	2,017.64	.....	2,928.55	.....	873.59	.....	3,877.70
West Virginia.....	22,071.73	2,985.28	360.00	10,112.11	3,089.16	2,753.98	2,771.20	.....	.....	.....	.....
Wisconsin.....	26,164.99	3,782.00	958.00	3,550.00	5,600.00	2,525.00	.....	.....	.....	.....	.....
Wyoming.....	11,249.20	3,593.17	519.99	1,805.54	2,690.23	230.57	1,222.55	.....	.....	.....	1,187.15
Total.....	1,077,923.73	177,213.30	27,867.77	289,708.77	174,753.22	63,125.80	63,189.11	3,201.37	3,153.22	27,104.06	38,365.08

11 For the Southern States includes only salary and expenses of State leaders of boys' club work.

EXPENDITURES FROM THE UNITED STATES APPROPRIATION OF MAY 8, 1914 (FEDERAL SMITH-LEVER)—Continued.

[illegible]

Expenditures for cooperative agricultural extension for the year ended June 30, 1916, by projects—(Continued.)

EXPENDITURES FROM THE UNITED STATES APPROPRIATION OF MAY 8, 1914 (FEDERAL SMITH-LEVER)—Continued.

State.	Animal diseases.	Agronomy.	Horticulture.	Botany and plant pathology.	Entomology and ornithology.	Forestry.	Agricultural engineering.	Farm management.	Rural organization.	Marketing.	Exhibits and fairs.	Miscellaneous special lists.
New Mexico.....								\$236.32				
New York.....		\$3,602.52	\$1,900.00	\$2,450.00	\$1,500.00			5,250.00				
North Carolina.....		2,906.97	2,106.85	396.23			\$200.00			\$2,530.48		
North Dakota.....								395.00				
Ohio.....							1,500.00	846.66				\$4,356.33
Oklahoma.....												4,855.85
Oregon.....												
Pennsylvania.....		1,355.55	3,510.91									
Rhode Island.....		770.71	1,368.66							802.05		727.88
South Carolina.....			560.45				730.79	924.61				
South Dakota.....		2,451.37				\$358.45				397.23		
Tennessee.....								3,863.98				
Texas.....								782.99			\$748.84	117.36
Utah.....								767.13				
Vermont.....												
Virginia.....			2,476.65				1,352.43	776.06				
Washington.....		207.50										
West Virginia.....												
Wisconsin.....		4,500.00		1,850.00			3,399.99					
Wyoming.....												
Total.....	\$9,593.93	35,352.22	42,949.87	6,801.49	4,603.57	358.45	15,680.02	34,004.56	\$3,197.59	7,204.80	748.84	31,731.84

EXPENDITURES BY THE STATES (STATE SMITH-LEVER).

State.	Total.	Administration.	Printing and distribution of publications.	County agents.	Home economics.	Extension schools.	Boys' and girls' clubs. ¹	Poultry clubs.	Animal husbandry.	Poultry.	Dairying.	Animal diseases.
Alabama.....	\$21,491.82			\$15,939.68	\$1,933.90							
Arizona.....	1,715.47	\$312.15	\$136.05	496.94	213.95	\$12.00	\$3,618.24					
Arkansas.....	16,678.41	2,012.44	2,118.50	6,919.10	2,860.11		544.38		\$200.00			
California.....	11,037.45	832.44		8,896.82	468.64		839.55					
Colorado.....	4,792.62	325.56	191.00	333.27	2,048.30		430.00					
Connecticut.....	1,397.19	1,203.00	119.00	53.32								
Delaware.....	1,279.51	327.52		324.81	108.85					\$460.01	\$21.87	
Florida.....	6,486.94	470.52		2,452.96	3,268.96		294.50				58.32	

Georgia.....	25,173.47	8,230.72	1,500.00	5,672.36	600.00	3,400.00	1,443.09	.....	.....	.....	.....	.....
Idaho.....	3,108.84	1,338.84	100.00	250.00	445.00	.....	125.00	.....	.....	.....	.....	.....
Illinois.....	26,282.20	.....	.....	26,282.20	.....	.....	.....	.....	.....	.....	.....	.....
Indiana.....	18,931.02	.....	.....	18,931.02	.....	.....	.....	.....	.....	.....	.....	.....
Iowa.....	18,781.18	7,317.98	917.18	3,474.86	4,270.00	1,751.16	1,050.00	.....	.....	.....	.....	.....
Kansas.....	14,555.45	.....	.....	13,964.34	223.67	.....	27.64	.....	.....	.....	.....	.....
Kentucky.....	20,068.05	3,217.45	.....	9,407.42	954.54	.....	.....	.....	.....	.....	.....	.....
Louisiana.....	14,102.11	1,945.96	133.60	4,673.57	1,377.91	.....	4,138.80	.....	.....	.....	.....	.....
Maine.....	4,388.28	.....	.....	3,159.10	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	7,640.38	.....	228.39	3,000.00	.....	.....	.....	.....	.....	.....	.....	.....
Massachusetts.....	2,930.75	.....	16.50	827.11	.....	.....	.....	.....	.....	.....	.....	.....
Michigan.....	18,032.37	865.30	781.87	5,898.46	1,161.31	1,696.66	2,087.14	.....	.....	.....	.....	.....
Minnesota.....	14,898.99	.....	.....	14,898.99	.....	.....	2,089.42	.....	.....	.....	.....	.....
Mississippi.....	19,329.35	.....	.....	14,329.35	5,000.00	.....	.....	.....	.....	.....	.....	.....
Missouri.....	23,034.17	2,651.59	657.46	4,700.06	.....	3,836.83	3,470.84	.....	.....	.....	.....	.....
Montana.....	2,950.01	.....	.....	2,950.01	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	10,715.89	4,637.17	.....	700.00	2,652.23	379.91	202.83	.....	.....	.....	.....	.....
Nevada.....	832.94	19.15	24.50	.....	117.15	.....	.....	.....	.....	.....	.....	.....
New Hampshire.....	2,133.46	571.90	310.85	.....	.....	590.71	.....	.....	.....	.....	.....	.....
New Jersey.....	7,645.12	580.00	.....	7,065.12	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico.....	3,413.20	.....	92.26	3,320.94	.....	.....	.....	.....	.....	.....	.....	.....
New York.....	23,442.72	.....	288.25	.....	112.67	6,404.78	398.94	.....	.....	.....	.....	.....
North Carolina.....	22,952.65	2,174.80	.....	14,150.65	6,522.45	.....	.....	.....	.....	.....	.....	.....
North Dakota.....	6,247.19	.....	.....	4,000.78	1,841.41	.....	.....	.....	.....	.....	.....	.....
Ohio.....	24,655.19	4,260.00	.....	4,277.18	11,513.66	200.00	2,697.00	.....	.....	.....	.....	.....
Oklahoma.....	16,225.54	3,251.61	200.00	9,228.76	1,633.57	685.11	87.98	.....	.....	.....	.....	.....
Oregon.....	4,446.36	1,380.01	.....	.....	1,266.35	800.00	.....	.....	.....	.....	.....	.....
Pennsylvania.....	36,893.75	3,638.07	1,407.41	21,651.53	4,657.15	100.75	2,662.86	.....	.....	.....	.....	.....
Rhode Island.....	218.31	.....	124.00	.....	.....	.....	85.46	.....	.....	.....	.....	.....
South Carolina.....	15,691.15	1,274.27	738.10	6,839.94	2,813.81	.....	.....	.....	.....	.....	.....	.....
South Dakota.....	6,166.89	2,560.32	.....	.....	.....	3,606.57	.....	.....	.....	.....	.....	.....
Tennessee.....	21,201.01	8,771.40	2,620.10	450.00	6,378.91	1,099.08	.....	.....	.....	.....	.....	.....
Texas.....	35,965.48	18,115.86	2,066.20	4,861.74	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	2,436.74	.....	112.89	1,322.14	1,001.71	.....	.....	.....	.....	.....	.....	.....
Vermont.....	2,273.77	574.29	.....	1,699.48	.....	.....	.....	.....	.....	.....	.....	.....
Virginia.....	19,271.96	879.94	262.29	11,920.38	2,630.02	.....	.....	.....	.....	.....	.....	.....
Washington.....	6,522.46	887.30	51.94	5,458.22	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	12,071.73	4,178.74	.....	4,293.82	392.21	1,027.09	2,179.87	.....	.....	.....	.....	.....
Wisconsin.....	16,164.99	.....	.....	14,000.99	.....	164.00	.....	.....	.....	.....	.....	.....
Wyoming.....	1,249.20	1,249.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	597,923.73	90,055.50	15,198.34	283,077.42	68,468.44	25,754.65	28,473.54	396.52	7,305.47	6,706.09	9,905.43	2,406.88

! For the Southern States includes only salary and expenses of State leaders of boys' club work.

Expenditures for cooperative agricultural extension for the year ended June 30, 1916, by projects—Continued.

EXPENDITURES BY THE STATES (STATE SMITH-LEVER)—Continued.

State.	Agromomy.	Horticulture.	Botany and plant pathology.	Entomology and ornithology.	Forestry.	Agricultural engineering.	Farm management.	Rural organization.	Marketing.	Exhibits and fairs.	Miscellaneous specialists.
Alabama.....											
Arizona.....											
Arkansas.....									\$450.00		\$2,118.26
California.....											
Colorado.....							\$1,464.49				
Connecticut.....											
Delaware.....											
Florida.....											
Georgia.....	\$1,301.64	\$1,000.00								\$2,025.66	
Idaho.....		550.00									
Illinois.....											
Indiana.....											
Iowa.....											
Kansas.....	120.16			\$34.67		\$47.71	112.44	\$573.29			
Kentucky.....	258.40								218.35		193.75
Louisiana.....		519.45									
Maine.....											
Maryland.....		1,522.88	\$1,499.88								
Massachusetts.....											
Michigan.....	1,892.08	1,315.22		458.86		329.36	1,050.89				
Minnesota.....											
Mississippi.....											
Missouri.....		1,931.90		830.37		86.31	1,226.72	530.13			
Montana.....		1,201.08					1,145.50				64.15
Nebraska.....											
Nevada.....							660.00				
New Hampshire.....											
New Jersey.....											
New Mexico.....											
New York.....	4,335.30		3,888.98	2,236.91	\$1,498.89						
North Carolina.....	104.75						405.00				
North Dakota.....											
Ohio.....											
Oklahoma.....						741.99					1,000.00
Oregon.....											
Pennsylvania.....											
Rhode Island.....										1,408.98	
South Carolina.....	687.50	1,145.81						1,367.00			
South Dakota.....									565.34		366.67

Tennessee.....	740.02	.....	.....	.....	.....	.....	.....	.....	.....	616.50	.....
Texas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vermont.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Virginia.....	725.36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wisconsin.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	9,439.85	9,911.70	5,388.86	3,560.81	1,498.89	3,003.55	6,065.04	12,279.09	1,850.19	3,434.64	3,742.83

EXPENDITURES FROM THE UNITED STATES APPROPRIATION OF MAY 8, 1914, AND BY THE STATES (STATE AND FEDERAL SMITH-LEVER).

State.	Total.	Adminis- tration.	Printing and distri- bution of publica- tions.	County agents.	Home economics.	Extension schools.	Boys' and girls' clubs. ¹	Pig clubs.	Poultry clubs.	Animal husbandry.	Poultry.	Dairying.
Alabama.....	\$52,983.64	\$5,872.00	\$1,123.48	\$19,497.76	\$10,484.40	\$2,198.57	\$4,114.64	\$1,191.27	.....	\$846.85	.....	\$1,273.61
Arizona.....	13,430.94	5,108.01	665.38	2,179.09	648.52	206.32	1,702.48	.....	.....	2,540.34	.....	.....
Arkansas.....	43,356.82	8,878.90	2,142.00	13,912.71	5,642.98	.....	.....	487.09	.....	200.00	.....	.....
California.....	32,074.90	3,426.50	.....	23,966.39	2,232.50	.....	2,449.51	.....	.....	.....	.....	.....
Colorado.....	19,585.24	6,669.88	337.44	6,357.80	2,057.27	.....	1,720.97	.....	.....	.....	.....	.....
Connecticut.....	12,794.38	4,307.22	214.00	3,495.38	.....	.....	1,210.57	.....	.....	.....	\$1,912.10	.....
Delaware.....	12,559.02	2,210.02	101.80	7,364.18	1,916.96	.....	.....	.....	.....	.....	460.01	.....
Florida.....	22,973.88	4,268.07	612.62	7,683.42	7,870.72	.....	1,940.50	.....	.....	.....	.....	.....
Georgia.....	60,346.94	14,130.19	3,000.00	12,146.36	11,670.84	5,900.00	1,443.09	800.00	\$800.00	2,149.16	.....	.....
Idaho.....	16,217.68	2,858.08	635.90	6,387.91	1,936.34	.....	1,783.77	.....	.....	888.32	.....	.....
Illinois.....	62,564.40	2,039.60	437.17	39,653.60	11,307.94	.....	.....	.....	.....	.....	.....	.....
Indiana.....	47,862.04	3,238.49	462.08	20,271.56	3,799.48	1,500.00	2,453.56	.....	.....	3,658.88	2,393.42	1,950.52
Iowa.....	47,562.36	13,453.54	2,304.36	6,966.42	9,270.00	4,193.54	2,100.00	.....	.....	.....	.....	.....
Kansas.....	39,110.90	2,696.37	.....	15,961.74	5,511.98	2,650.00	1,930.74	.....	.....	750.00	1,329.11	1,074.82
Kentucky.....	50,136.10	10,057.91	1,583.71	17,752.57	8,131.64	98.40	1,600.00	723.01	577.37	2,894.12	2,289.05	1,656.95
Louisiana.....	38,204.22	5,273.92	1,430.92	9,570.75	4,847.80	.....	10,339.87	.....	.....	.....	2,204.99	.....
Maine.....	18,776.56	2,151.52	331.86	9,428.51	1,424.00	565.85	.....	.....	.....	.....	.....	2,612.17
Maryland.....	25,280.76	3,163.99	743.25	4,638.20	3,795.08	251.70	1,464.23	.....	.....	729.90	349.92	1,389.23
Massachusetts.....	15,861.50	.....	549.48	2,800.11	2,754.27	538.57	3,031.97	.....	.....	748.55	2,437.22	1,018.91
Michigan.....	46,064.74	.....	781.87	20,786.80	3,824.37	1,696.66	2,656.12	.....	.....	846.74	.....	.....
Minnesota.....	39,797.98	3,286.90	.....	20,177.48	6,284.22	1,730.88	2,478.95	.....	.....	.....	.....	.....
Mississippi.....	48,658.70	3,673.18	615.30	18,790.80	15,017.57	.....	250.00	.....	.....	2,470.67	.....	.....
Missouri.....	56,068.34	8,819.03	1,280.96	5,402.42	.....	11,246.33	8,503.95	.....	.....	.....	.....	3,144.04
Montana.....	15,900.02	3,359.61	329.70	8,461.16	2,149.05	.....	300.00	.....	.....	1,000.00	.....	.....
Nebraska.....	31,431.78	7,580.79	747.96	6,988.18	4,905.83	3,763.15	1,125.00	.....	.....	1,346.46	.....	.....
Nevada.....	11,665.88	2,353.75	281.24	.....	1,085.59	.....	2,848.29	.....	.....	.....	.....	1,274.32
New Hampshire.....	14,266.92	2,905.36	310.85	4,121.64	1,600.00	590.71	.....	.....	.....	.....	.....	1,878.36
New Jersey.....	25,290.24	3,713.40	768.60	9,315.35	3,412.83	.....	62.95	.....	.....	.....	2,405.71	.....

1 For the southern States includes only salary and expenses of State leaders of boys' club.

Sources of offset to Federal Smith-Lever funds for the year ended June 30, 1916.

State.	Total.	State.	County.	College.	Other.	Balance.
Alabama.....	\$21,491.82	\$5,552.14	\$14,970.90	.....	\$968.78	.....
Arizona.....	1,715.47	1,715.47	.....	.....	.....	.....
Arkansas.....	16,678.41	16,678.41	.....	.....	.....	.....
California.....	11,037.45	11,037.45	.....	.....	.....	.....
Colorado.....	4,792.62	4,792.62	.....	.....	.....	.....
Connecticut.....	1,397.20	1,397.19	.....	.....	.....	\$0.01
Delaware.....	1,279.51	1,279.51	.....	.....	.....	.....
Florida.....	6,486.94	6,486.94	.....	.....	.....	.....
Georgia.....	25,173.47	25,173.47	.....	.....	.....	.....
Idaho.....	3,108.84	147.06	.....	.....	2,961.78	.....
Illinois.....	26,282.20	.....	.....	.....	26,282.20	.....
Indiana.....	18,931.02	18,931.02	.....	.....	.....	.....
Iowa.....	18,781.18	18,781.18	.....	.....	.....	.....
Kansas.....	14,555.45	14,555.45	.....	.....	.....	.....
Kentucky.....	21,088.17	.....	7,807.42	\$11,260.63	1,000.00	1,020.12
Louisiana.....	14,102.11	14,094.00	.....	8.11	.....	.....
Maine.....	4,388.28	4,388.28	.....	.....	.....	.....
Maryland.....	7,746.73	7,640.33	.....	.....	.....	106.35
Massachusetts.....	2,930.75	2,930.75	.....	.....	.....	.....
Michigan.....	18,032.37	.....	2,473.01	15,559.36	.....	.....
Minnesota.....	14,898.99	14,898.99	.....	.....	.....	.....
Mississippi.....	19,329.35	.....	19,329.35	.....	.....	.....
Missouri.....	23,034.17	23,034.17	.....	.....	.....	.....
Montana.....	2,950.01	2,950.01	.....	.....	.....	.....
Nebraska.....	10,715.89	10,715.89	.....	.....	.....	.....
Nevada.....	832.94	832.94	.....	.....	.....	.....
New Hampshire.....	2,133.46	2,133.46	.....	.....	.....	.....
New Jersey.....	7,659.22	7,645.12	.....	.....	.....	14.10
New Mexico.....	3,413.20	3,413.20	.....	.....	.....	.....
New York.....	23,442.72	23,442.72	.....	.....	.....	.....
North Carolina.....	22,952.65	22,952.65	.....	.....	.....	.....
North Dakota.....	6,247.19	6,247.19	.....	.....	.....	.....
Ohio.....	25,556.54	24,655.19	.....	.....	.....	901.35
Oklahoma.....	16,255.69	16,218.88	.....	6.66	.....	30.15
Oregon.....	4,446.36	4,446.36	.....	.....	.....	.....
Pennsylvania.....	36,893.75	16,910.41	19,983.34	.....	.....	.....
Rhode Island.....	218.31	218.31	.....	.....	.....	.....
South Carolina.....	15,691.15	15,691.15	.....	.....	.....	.....
South Dakota.....	6,166.89	6,166.89	.....	.....	.....	.....
Tennessee.....	21,201.01	21,201.01	.....	.....	.....	.....
Texas.....	35,969.67	35,965.48	.....	.....	.....	4.19
Utah.....	2,436.74	2,436.74	.....	.....	.....	.....
Vermont.....	2,273.77	2,273.77	.....	.....	.....	.....
Virginia.....	19,271.96	14,609.19	4,662.77	.....	.....	.....
Washington.....	6,522.46	6,522.46	.....	.....	.....	.....
West Virginia.....	12,071.73	12,071.73	.....	.....	.....	.....
Wisconsin.....	16,164.99	16,164.99	.....	.....	.....	.....
Wyoming.....	1,249.20	1,249.20	.....	.....	.....	.....
Total.....	600,000.00	470,649.42	69,226.79	26,834.76	31,212.76	2,076.27

Total expenditures of funds from all sources for cooperative agricultural extension for the year ended June 30, 1916.

BY SOURCES OF FUNDS.

State.	Total.	United States Department of Agriculture.			Smith-Lever.		State.	County.	College.	Other.
		States Relat- ions Service.		Other bureaus and offices.	Federal.	State.				
Alabama.....	\$135,847.93	\$45,529.10	\$6,040.48		\$31,491.82	\$21,491.82	\$22,109.51	\$2,708.75	\$845.22	\$5,631.23
Arizona.....	25,747.40	4,273.89	.....		11,715.47	1,715.47	2,407.96	4,463.97	.....	1,170.64
Arkansas.....	164,830.02	39,531.48	6,273.07		26,678.41	16,678.41	3,783.65	64,795.00	.....	7,090.00
California.....	88,219.39	8,624.72	1,250.00		21,037.45	11,037.45	.....	26,000.00	15,269.77	.....
Colorado.....	37,026.13	9,443.33	.....		14,792.62	4,792.62	2,740.40	5,132.40	.....	124.76
Connecticut.....	58,508.34	5,825.48	1,293.00		11,397.19	1,397.19	7,756.21	23,939.27	.....	6,900.00
Delaware.....	15,722.62	1,225.60	1,188.00		11,279.51	1,279.51	.....	.....	.....	750.00
Florida.....	82,409.38	25,231.40	.....		16,486.94	6,486.94	4,768.33	20,722.89	5,285.72	3,427.16
Georgia.....	181,071.62	49,506.51	12,605.76		35,173.47	25,173.47	5,912.41	52,400.00	.....	300.00
Idaho.....	44,217.18	5,150.00	343.00		13,108.84	3,108.84	4,918.33	7,520.00	10,068.17	.....
Illinois.....	140,611.50	17,031.30	300.00		36,282.20	26,282.20	.....	26,108.00	2,190.00	.....
Indiana.....	196,180.79	14,253.73	2,816.65		28,931.02	18,931.02	56,001.22	51,614.80	.....	32,417.80
Iowa.....	215,037.35	15,991.56	4,215.00		28,781.18	18,781.18	68,428.43	4,160.00	.....	23,632.35
Kansas.....	112,801.53	13,310.63	100.00		24,555.45	14,555.45	.....	4,792.99	45,975.91	74,700.00
Kentucky.....	119,896.92	41,454.04	2,870.85		30,068.05	20,068.05	1,925.00	17,683.38	83.33	9,511.10
Louisiana.....	133,370.49	40,433.70	23,420.73		24,102.11	14,102.11	50.00	29,694.24	.....	5,744.22
Maine.....	23,713.36	1,100.00	400.00		14,388.28	4,388.28	.....	.....	3,436.80	1,567.60
Maryland.....	57,657.39	19,943.36	1,320.00		17,640.38	7,640.38	20.00	8,050.00	3,043.27	.....
Massachusetts.....	83,989.21	14,462.19	2,013.50		12,930.75	2,930.75	51,652.02	.....	.....	.....
Michigan.....	83,214.18	14,999.03	1,350.00		28,032.37	18,032.37	.....	1,366.45	19,433.96	.....
Minnesota.....	133,010.22	12,591.57	1,858.00		24,898.99	14,898.99	26,392.58	16,364.49	28,725.82	7,279.78
Mississippi.....	139,556.08	46,943.05	10,037.00		29,329.35	19,329.35	9,332.75	18,179.20	1,833.30	4,572.08
Missouri.....	96,376.74	10,231.28	100.00		33,034.17	23,034.17	9,747.02	20,230.10	.....	.....
Montana.....	55,190.11	7,768.09	1,755.00		12,950.01	2,950.01	20,767.00	7,100.00	.....	1,900.00
Nebraska.....	116,455.99	12,664.62	2,883.62		20,715.89	10,715.89	15,125.97	12,000.00	4,850.00	37,500.00
Nevada.....	17,218.73	117.83	1,450.00		10,832.94	832.94	3,985.02	.....	.....	.....
New Hampshire.....	33,128.86	5,220.61	400.00		12,133.46	2,133.46	300.00	9,941.36	2,999.97	.....
New Jersey.....	55,064.26	7,310.12	.....		17,645.12	7,645.12	6,927.23	14,936.67	.....	600.00
New Mexico.....	37,971.88	7,828.47	1,500.00		13,413.20	3,413.20	.....	11,166.00	505.32	145.69
New York.....	244,041.40	20,821.13	679.26		33,442.72	23,442.72	61,754.61	101,045.84	2,855.12	.....
North Carolina.....	207,220.52	40,356.51	14,416.21		32,952.65	22,952.65	33,827.50	62,715.00	.....	.....
North Dakota.....	74,781.42	7,088.62	100.00		16,247.19	6,247.19	15,625.27	29,473.15	.....	.....
Ohio.....	132,691.08	7,458.82	1,515.93		34,655.19	24,655.19	51,909.98	12,495.97	.....	.....
Oklahoma.....	142,120.19	39,677.28	4,948.33		26,225.54	16,225.54	52,070.08	28,995.38	11,766.87	14,281.25
Oregon.....	104,008.55	8,141.12	4,979.67		14,446.36	4,446.36	.....	19,392.65	.....	532.31
Pennsylvania.....	114,418.77	11,437.95	2,343.00		46,893.75	36,893.75	.....	2,095.61	14,754.71	.....
Rhode Island.....	21,482.14	2,728.65	400.00		10,218.31	218.31	2,000.00	2,000.00	1,366.87	2,550.00
South Carolina.....	152,389.34	42,597.38	15,838.42		25,691.15	15,691.15	5,569.04	21,950.00	20,602.20	4,450.00

Total expenditures of funds from all sources for cooperative agricultural extension for the year ended June 30, 1916—Continued.

BY SOURCES OF FUNDS—Continued.

State.	Total.	United States Department of Agriculture.		Smith-Lever.		State.	County.	College.	Other.
		States Relations Service.	Other bureaus and offices.	Federal.	State.				
North Dakota	58,902.73	5,618.25	1,550.00	16,166.89	6,166.89	17,729.14	11,671.56	.....	.....
Tennessee	142,800.16	33,684.31	12,142.34	31,201.01	21,201.01	.....	39,288.75	.....	5,282.74
Texas	232,023.52	69,933.30	4,062.00	45,965.48	35,965.48	.....	76,097.26	.....	.....
Utah	53,100.10	8,840.89	2,186.75	12,436.74	2,436.74	21,502.98	4,185.00	.....	1,511.00
Vermont	57,807.49	13,643.88	4,603.14	12,273.77	2,273.77	5,388.09	19,624.84	.....	.....
Virginia	125,376.15	39,794.70	1,415.30	29,271.96	19,271.96	5,396.45	21,483.00	.....	8,742.78
Washington	80,756.54	8,414.51	2,218.00	16,522.46	6,522.46	13,887.86	22,694.33	4,538.17	5,958.75
West Virginia	107,522.27	24,175.90	1,290.00	22,071.73	12,071.73	22,350.68	17,649.38	.....	7,912.85
Wisconsin	89,255.50	10,901.70	1,200.00	26,164.99	16,164.99	.....	14,320.00	20,503.82	.....
Wyoming	44,417.47	7,078.33	1,500.00	11,249.20	1,249.20	17,736.86	5,003.88	.....	600.00
Total	4,864,180.94	900,389.92	165,172.01	1,077,923.73	597,923.73	651,799.58	973,251.56	220,934.32	276,786.09

BY ITEMS OF EXPENSE.

State.	Amount of appropriation.	Salaries.	Labor.	Publications.	Stationery and small printing.	Postage, telegraph, phone, freight, and express.	Heat, light, water, and power.	Supplies.	Library.	Tools, machinery, and appliances.	Furniture and fixtures.	Scientific apparatus and specimens.	Live stock.	Traveling expenses.	Contin- gent ex- penses.
Alabama	\$135,847.93	\$110,048.42	\$1,369.13	\$1,123.48	\$806.18	\$865.13	\$231.30	\$1,050.95	\$75.77	\$284.92	\$1,104.25	\$100.40	.....	\$18,787.00	\$1.00
Arizona	25,747.40	13,973.91	342.37	1,126.66	791.14	297.14	.50	398.79	.....	1,463.48	644.70	118.77	.....	6,550.34	39.60
Arkansas	164,830.02	143,696.42	283.33	2,242.00	756.08	721.59	170.36	820.08	16.00	100.80	1,691.70	56.56	.....	13,628.23	646.87
California	83,219.39	40,960.67	1,499.47	186.41	991.24	424.19	2.91	602.45	.....	1,636.55	232.76	38.00	.....	28,062.85	8,581.89
Colorado	37,026.13	22,656.82	1,167.58	923.62	1,608.53	830.63	3.25	788.45	.....	43.14	988.68	268.32	.....	7,680.51	66.60
Connecticut	58,508.34	36,637.15	3,555.36	1,105.61	894.68	1,053.81	486.69	1,409.42	27.97	649.91	1,252.23	64.85	.....	10,394.51	976.15
Delaware	15,722.62	11,886.43	23.51	101.80	45.15	286.36	12.15	176.74	.....	48.14	80.75	7.65	.....	3,007.74	46.20
Florida	82,409.38	70,577.29	20.15	612.62	63.76	114.43	.....	151.52	.....	.....	1,672.25	105.20	.....	9,092.16	.....
Georgia	181,071.62	147,664.64	722.38	3,193.44	1,012.91	993.70	481.42	2,248.18	10.50	1,787.18	2,349.50	180.49	.....	20,427.28	.....
Idaho	44,217.18	26,674.82	1,004.41	769.90	707.92	895.65	23.50	478.26	41.10	112.84	122.85	23.70	.....	13,285.73	76.50

Illinois.....	140,611.50	85,076.27	429.20	517.17	806.45	1,114.67	.....	332.20	31.41	3,777.27	787.13	.....	.....	.....	.....	12,748.93	34,990.80
Indiana.....	196,180.79	124,955.01	1,621.19	1,184.18	2,442.06	1,275.16	.....	32,552.66	.....	73.25	664.21	.....	126.60	.....	.....	31,285.52	.....
Iowa.....	215,057.35	104,410.69	12,996.50	8,796.58	4,691.65	3,353.63	729.14	1,767.12	.....	220.37	1,314.53	.....	916.13	.....	.....	75,431.07	36.50
Kansas.....	112,801.53	85,171.07	2,036.35	394.71	585.28	2,529.96	.45	1,025.10	12.45	86.23	605.02	.....	92.63	.....	.....	17,980.66	2,281.62
Kentucky.....	119,896.92	99,711.35	401.55	1,583.71	1,025.20	245.54	.....	1,848.58	251.88	311.29	1,418.25	.....	813.55	.....	.....	13,239.02	47.00
Louisiana.....	133,370.49	104,442.16	217.10	1,430.92	1,899.03	399.13	100.00	1,477.97	.....	23.71	1,337.74	.....	13.10	.....	.....	23,028.63	1.00
Maine.....	23,713.36	13,255.87	510.91	1,331.86	415.52	280.03	3.90	615.42	43.22	261.02	730.71	.....	542.85	.....	.....	6,722.05	.....
Maryland.....	57,657.39	46,660.58	286.79	743.25	647.70	427.59	.....	176.00	105.94	53.62	488.38	.....	554.57	.....	.....	7,512.97	.....
Massachusetts.....	83,989.21	58,000.76	1,559.49	718.33	3,590.29	162.55	.....	8,195.45	285.42	11.24	443.79	.....	69.60	.....	.....	10,952.29	.....
Michigan.....	83,214.18	57,919.13	3,064.50	2,780.52	1,808.97	735.55	.....	1,178.29	1.60	.....	642.50	.....	297.58	.....	.....	14,785.54	.....
Minnesota.....	133,010.22	77,343.80	12,037.17	12,143.12	2,093.08	1,875.91	38.45	575.62	3.00	.....	778.42	.....	20.01	.....	.....	23,465.33	1,466.31
Mississippi.....	139,556.08	116,033.19	397.65	615.30	2,665.59	819.91	.....	696.23	2.96	1,170.89	618.36	.....	84.00	.....	.....	19,269.89	453.00
Missouri.....	96,376.74	73,419.71	2,350.29	1,354.35	2,328.21	1,747.96	.....	2,296.18	1.25	452.97	469.71	.....	173.09	.....	.....	11,783.02	.....
Montana.....	55,190.11	28,368.60	3,708.11	329.70	727.27	66.05	2.65	57.65	.....	.....	53.50	.....	16.11	.....	.....	20,010.47	1,850.00
Nebraska.....	116,455.99	58,772.96	1,456.74	2,949.68	7,480.58	701.20	2,250.00	5,981.49	128.05	1,769.61	1,433.03	.....	5.00	.....	.....	25,972.50	7,355.15
Nevada.....	17,218.73	12,323.16	79.20	881.24	549.75	72.49	.....	524.68	51.95	303.35	45.80	.....	188.17	.....	.....	1,945.24	2.00
New Hampshire.....	33,128.86	19,210.63	1,473.39	416.91	2,549.68	223.28	1.75	731.32	3.38	9.00	194.15	.....	45.20	.....	.....	8,257.17	13.00
New Jersey.....	55,064.26	32,280.64	168.90	768.60	583.88	525.61	.....	825.73	27.30	61.45	443.03	.....	18.68	.....	.....	19,076.88	283.56
New Mexico.....	37,971.88	22,135.70	287.59	1,267.58	572.21	325.09	6.00	107.06	33.71	49.70	639.82	.....	-55.53	.....	.....	12,481.89	.....
New York.....	244,041.40	162,644.37	4,063.89	9,835.84	3,944.43	4,778.63	.....	9,744.49	73.38	108.97	1,983.78	.....	2,819.25	.....	.....	36,849.35	7,195.02
North Carolina.....	207,220.52	162,879.99	1,225.34	6,394.50	1,840.69	792.26	6.35	947.26	74.85	152.88	1,583.23	.....	279.83	.....	.....	31,043.34	.....
North Dakota.....	74,781.42	51,395.45	397.75	323.72	.....	711.63	.....	392.54	10.00	269.44	356.70	.....	17.37	.....	.....	15,755.93	5,150.89
Ohio.....	132,691.08	86,168.82	2,072.91	2,909.21	4,762.58	2,682.27	20.46	1,995.68	52.33	231.13	2,507.93	.....	127.49	.....	.....	28,195.29	964.98
Oklahoma.....	142,120.19	116,529.31	849.79	2,307.38	1,258.03	227.55	.....	621.63	10.80	.....	1,234.63	.....	100.00	.....	.....	18,501.07	480.00
Oregon.....	104,008.55	68,022.91	2,615.13	1,699.69	487.01	2,203.91	95.15	2,122.73	2.50	7,842.56	1,569.48	.....	255.25	.....	.....	16,205.03	882.20
Pennsylvania.....	114,418.77	68,906.15	1,666.50	2,816.82	4,004.14	5,389.57	.....	1,462.46	179.16	638.83	1,587.63	.....	255.80	.....	.....	26,351.99	1,159.72
Rhode Island.....	21,482.14	14,901.73	190.49	124.00	538.41	187.31	.....	108.83	19.06	29.50	42.56	.....	57.14	.....	.....	5,283.11	.....
South Carolina.....	152,389.34	127,381.29	210.02	2,577.00	382.55	603.03	.....	204.33	24.25	31.51	633.74	.....	2.14	.....	.....	20,286.48	48.00
South Dakota.....	58,902.73	42,678.05	384.69	24.50	1,001.00	564.10	.....	229.87	30.18	814.85	1,142.82	.....	391.01	.....	.....	11,626.66	15.00
Tennessee.....	142,800.16	107,422.84	1,390.52	2,620.10	6,091.52	709.04	.....	1,098.51	299.99	396.96	3,136.87	.....	312.03	.....	.....	18,933.86	210.31
Texas.....	232,023.52	184,605.29	1,249.62	3,918.35	2,978.37	1,053.14	19.25	376.58	41.00	379.18	4,457.36	.....	9.38	.....	.....	32,896.00	40.00
Utah.....	53,100.10	35,791.80	2,962.98	840.35	511.28	325.11	.....	788.62	8.50	1,206.31	417.01	.....	.....	.....	.....	10,248.14	.....
Vermont.....	57,807.49	32,952.94	1,381.49	568.53	1,810.17	1,357.46	.....	1,733.42	97.77	2,661.04	810.72	.....	152.04	.....	.....	14,281.91	.....
Virginia.....	125,376.15	109,176.70	34.77	637.64	914.26	171.21	4.20	526.11	.....	.....	1,116.10	.....	135.00	.....	.....	12,453.36	206.80
Washington.....	80,756.54	46,687.32	2,896.59	4,299.77	2,637.90	1,452.53	.....	1,849.06	12.00	517.25	736.14	.....	224.20	.....	.....	19,428.78	15.00
West Virginia.....	107,522.27	78,693.19	781.80	3,367.20	2,917.53	762.30	10.25	924.87	24.09	191.11	1,071.15	.....	10.82	.....	.....	17,919.97	847.99
Wisconsin.....	89,255.50	66,216.78	357.66	1,244.34	504.87	501.36	1.32	4,196.30	4.90	272.20	67.68	.....	267.96	.....	.....	15,615.13	5.00
Wyoming.....	44,417.47	26,709.47	227.35	1,748.37	440.06	863.84	.....	315.49	44.74	2,468.72	728.48	.....	306.55	.....	.....	10,518.55	45.85
Total.....	4,864,180.94	3,434,032.25	80,029.60	98,850.56	79,064.79	48,709.30	4,842.21	97,728.37	2,164.36	32,974.37	48,631.76	10,719.60	692.89	849,259.37	76,481.51		

Total expenditures of funds from all sources for cooperative agricultural extension for the year ended June 30, 1916—Continued.

BY PROJECTS.

State.	Total.	Admin- istration.	Printing and distri- bution of publica- tions.	County agents.	Home economics.	Extension schools.	Boys' and girls' clubs. ¹	Pig clubs.	Poultry clubs.	Animal hus- bandry.	Poultry.	Dairying.	Animal diseases.
Alabama.....	\$135,847.93	\$5,872.00	\$1,123.48	\$84,462.92	\$19,534.44	\$2,198.57	\$6,923.25	\$2,692.50	.....	\$2,359.60	.....	\$4,036.61	.....
Arizona.....	25,747.40	5,607.05	1,126.66	9,457.70	1,451.27	277.93	3,523.13	.....	.....	3,258.40	.....	.....	.....
Arkansas.....	164,830.02	12,483.35	2,242.00	103,630.69	25,827.46	.....	1,514.02	2,107.09	.....	1,973.07	.....	2,580.00	.....
California.....	83,219.39	8,410.42	186.41	57,488.30	2,831.63	7,928.48	5,124.15	1,250.00	.....	.....	.....	.....	.....
Colorado.....	37,026.13	6,691.63	923.62	17,870.20	2,272.97	.....	3,470.97	.....	.....	.....	.....	.....	.....
Connecticut.....	58,508.34	5,187.20	1,105.61	35,890.56	.....	1,136.99	5,657.07	.....	.....	.....	\$2,135.16	3,256.42	.....
Delaware.....	15,722.62	2,210.02	101.80	8,556.68	1,916.96	.....	33.10	.....	.....	.....	460.01	2,300.37	.....
Florida.....	82,409.38	4,268.07	612.62	43,623.49	29,955.21	.....	3,351.44	.....	.....	.....	.....	598.55	.....
Georgia.....	181,071.62	14,223.19	3,193.44	99,971.86	29,874.54	5,966.25	2,852.36	2,754.60	\$2,265.00	7,074.95	.....	5,649.00	.....
Idaho.....	44,217.18	6,500.02	769.90	17,659.78	3,258.48	2,122.74	4,245.28	.....	.....	1,361.24	.....	631.37	.....
Illinois.....	140,611.50	2,039.60	437.17	112,605.70	11,307.94	.....	3,640.00	.....	.....	.....	.....	300.00	.....
Indiana.....	196,180.79	16,344.78	1,184.18	84,202.39	5,010.75	7,062.23	7,910.30	1,716.65	.....	5,525.65	3,340.41	6,850.27	\$4,800.00
Iowa.....	215,037.35	27,401.24	8,796.76	49,554.53	20,572.79	23,653.27	19,283.15	.....	.....	6,177.18	2,635.51	8,963.78	5,625.19
Kansas.....	112,801.53	8,197.84	394.71	41,494.61	9,198.08	4,074.45	3,775.42	.....	.....	837.58	1,466.58	1,348.88	.....
Kentucky.....	119,896.92	10,141.24	1,583.71	67,458.00	23,029.33	98.40	2,803.52	2,523.01	1,648.22	2,894.12	2,289.05	1,656.95	183.07
Louisiana.....	133,370.49	5,273.92	1,430.92	67,312.65	16,118.94	.....	13,072.37	1,679.21	.....	19,994.00	2,204.99	594.00	.....
Maine.....	23,713.36	3,977.26	331.86	9,854.71	1,684.63	565.85	.....	.....	.....	729.90	387.77	3,012.89	.....
Maryland.....	57,637.39	5,303.99	743.25	25,079.74	9,875.70	.....	2,935.43	.....	.....	.....	349.92	2,729.23	.....
Massachusetts.....	83,989.21	11,886.49	718.33	15,561.18	4,838.41	11,478.39	8,523.62	1,312.50	.....	2,392.64	4,012.23	2,215.87	.....
Michigan.....	83,214.18	3,579.00	2,780.52	35,673.17	4,188.27	1,696.66	4,352.90	.....	.....	1,224.89	.....	1,361.41	.....
Minnesota.....	133,010.22	11,998.61	12,143.12	54,575.08	7,484.33	5,287.59	5,530.45	.....	.....	.....	2,437.36	4,094.65	.....
Mississippi.....	139,556.08	3,673.18	615.30	70,806.62	27,845.97	655.07	6,469.46	.....	.....	5,117.67	.....	8,352.49	.....
Missouri.....	96,376.74	9,149.61	1,354.35	44,103.73	.....	11,212.34	8,502.55	.....	.....	.....	.....	3,648.17	5,616.91
Montana.....	55,190.11	8,989.61	329.70	29,373.16	3,209.05	.....	2,826.42	.....	.....	3,300.00	.....	4,755.00	.....
Nebraska.....	116,455.99	11,213.86	2,949.68	29,426.74	5,155.83	28,182.05	16,534.76	2,912.78	.....	2,096.46	.....	3,133.28	.....
Nevada.....	17,218.73	2,530.15	881.24	.....	1,085.59	.....	2,964.72	.....	.....	.....	.....	2,724.32	5,710.85
New Hampshire.....	33,128.86	4,099.27	416.91	19,016.33	1,600.00	590.71	208.11	.....	.....	.....	2,513.44	2,278.36	.....
New Jersey.....	55,064.26	8,186.08	768.60	31,616.91	3,412.83	.....	1,267.83	.....	.....	.....	.....	378.37	.....
New Mexico.....	37,971.88	4,160.94	1,267.58	22,544.41	2,136.94	1,348.37	3,653.38	.....	.....	.....	.....	2,307.14	.....
New York.....	244,041.40	20,230.92	9,969.72	138,499.86	6,006.48	11,139.02	2,563.59	.....	.....	6,387.55	5,250.11	1,940.39	.....
North Carolina.....	207,220.52	7,972.76	6,394.50	88,702.14	43,270.43	.....	6,857.42	1,673.47	1,546.02	14,040.72	.....	15,799.28	.....
North Dakota.....	74,781.42	11,153.18	772.35	54,560.55	4,509.57	.....	2,447.50	.....	.....	356.52	.....	100.00	.....
Ohio.....	132,691.08	16,797.58	2,909.21	32,006.87	16,085.00	10,130.63	6,525.08	.....	.....	.....	.....	3,804.02	.....
Oklahoma.....	142,120.19	8,981.19	2,307.38	93,365.87	20,439.43	2,140.87	4,483.67	1,470.33	946.52	.....	.....	2,928.00	.....
Oregon.....	104,008.55	9,987.41	1,699.69	46,172.88	2,403.37	8,954.39	6,730.93	1,760.71	.....	.....	.....	5,454.62	.....
Pennsylvania.....	114,418.77	14,331.53	2,816.82	69,399.06	5,652.87	1,847.60	2,794.73	.....	.....	.....	1,973.77	8,100.27	.....
Rhode Island.....	21,482.14	3,581.46	124.00	7,087.35	1,874.10	.....	4,973.43	.....	.....	.....	.....	400.00	.....
South Carolina.....	162,389.34	11,549.23	2,577.00	68,186.61	39,975.14	.....	1,976.60	.....	1,431.10	7,524.23	1,830.84	8,801.01	.....
South Dakota.....	58,902.73	5,925.30	24.50	30,367.56	.....	14,338.80	2,567.07	.....	.....	725.84	.....	2,737.81	.....

Tennessee.....	142,800.16	24,477.19	2,620.10	64,762.95	27,258.10	2,245.35	3,643.09	1,350.00	2,691.44	5,151.48	.....	7,749.96
Texas.....	232,023.52	28,438.24	3,918.35	137,941.90	22,285.95	13,698.00	5,041.22	.....	.....	.....	.....	5,962.33
Utah.....	53,100.10	7,270.70	840.35	18,447.40	5,309.58	2,418.41	.....	.....	.....	.....	.....	2,773.79
Vermont.....	57,807.49	6,130.52	568.53	34,546.26	2,427.99	2,649.52	2,774.65	.....	.....	.....	.....	4,384.68
Virginia.....	125,376.15	7,040.35	637.64	81,900.31	23,557.53	.....	.....	.....	2,244.05	3,139.72	.....	957.56
Washington.....	80,756.54	8,673.05	4,393.20	33,705.16	3,118.81	3,678.89	9,794.21	.....	.....	.....	1,268.99	12,555.14
West Virginia.....	107,522.27	10,170.70	3,367.20	57,421.77	9,332.73	4,320.06	11,309.85	.....	.....	.....	.....	2,586.81
Wisconsin.....	89,255.50	5,325.00	1,244.34	41,529.87	8,880.14	4,224.37	2,569.21	.....	.....	3,091.64	.....	2,793.14
Wyoming.....	44,417.47	7,607.65	2,081.37	24,060.60	2,751.43	471.07	3,255.75	.....	.....	.....	.....	2,971.50
Total.....	4,864,180.94	445,243.67	99,779.68	2,411,539.81	519,866.99	198,045.02	231,227.16	25,202.85	12,772.35	106,735.05	34,556.14	172,557.69
												21,936.02

BY PROJECTS—Continued.

State.	Agronomy.	Horticulture.	Botany and plant pathology.	Entomology and ornithology.	Forestry.	Agricultural engineering.	Farm management.	Rural organization.	Marketing.	Exhibits and fairs.	Farmers' institutes.	Correspondence courses.	Agriculture in schools.	Miscellaneous specialists.
Alabama.....	\$2,753.02	.....	.....	.....	.....	\$1,901.22	.....	\$105.59	\$712.13	\$116.68	.....	.....	.....	\$1,172.60
Arizona.....	642.23	.....	.....	.....	.....	.....	.....	.....	966.00	.....	.....	.....	.....	286.35
Arkansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,506.34
California.....	.....	.....	.....	.....	.....	.....	\$3,062.19	.....	.....	.....	.....	.....	.....	.....
Colorado.....	.....	.....	.....	.....	.....	.....	3,767.38	.....	.....	371.95	.....	.....	.....	2,734.55
Connecticut.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Delaware.....	.....	\$40.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	103.68
Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia.....	3,320.27	1,000.00	.....	.....	.....	600.00	.....	.....	.....	2,326.16	.....	.....	.....	.....
Idaho.....	4,029.82	3,638.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois.....	.....	.....	.....	.....	.....	.....	2,281.09	.....	.....	.....	.....	.....	.....	8,000.00
Indiana.....	5,416.21	4,953.37	\$1,334.80	\$81.95	\$268.83	.....	4,511.38	1,010.35	.....	2,600.22	\$32,056.07	.....	.....	.....
Iowa.....	14,454.09	7,846.91	.....	.....	.....	3,952.73	2,272.96	150.00	.....	.....	.....	\$2,528.96	\$2,540.30	8,648.00
Kansas.....	2,355.72	1,385.19	.....	829.53	.....	11,434.53	2,523.91	3,911.08	.....	.....	10,885.15	8,688.27	.....	.....
Kentucky.....	1,008.40	2,006.61	.....	.....	.....	.....	.....	573.29	1,887.11	.....	.....	.....	.....	.....
Louisiana.....	.....	2,724.47	.....	.....	.....	.....	1,892.52	.....	.....	.....	.....	.....	.....	1,077.91
Maine.....	1,470.13	.....	.....	.....	.....	.....	1,739.41	.....	.....	.....	.....	.....	.....	535.74
Maryland.....	1,610.47	2,446.57	2,873.61	.....	.....	384.92	.....	603.55	.....	.....	.....	.....	.....	.....
Massachusetts.....	.....	2,633.97	.....	150.00	.....	.....	3,696.61	8,413.75	1.00	1,363.77	.....	3,740.45	.....	.....
Michigan.....	4,070.93	4,800.45	.....	1,137.73	1,480.14	1,504.62	3,261.47	241.56	2,511.59	178.80	9,170.07	.....	.....	.....
Minnesota.....	1,359.97	2,189.09	.....	.....	.....	.....	12,482.94	6,604.82	.....	669.98	3,532.60	.....	2,619.63	.....
Mississippi.....	.....	1,215.90	.....	.....	.....	1,733.59	1,296.96	1,299.56	2,295.17	.....	5,822.14	.....	2,357.00	.....
Missouri.....	.....	4,144.96	.....	2,574.62	.....	119.62	4,196.91	1,750.97	.....	.....	.....	.....	.....	.....
Montana.....	.....	.....	.....	.....	.....	.....	2,407.17	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	1,826.36	2,612.86	.....	.....	.....	2,026.47	8,384.86	.....	.....	.....	.....	.....	.....	.....
Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,321.86
New Hampshire.....	.....	4,200.00	.....	.....	.....	.....	719.17	.....	.....	.....	.....	.....	.....	.....

¹ For the Southern States includes only salary and expenses of State leaders of boys' club work.

Total expenditures of funds from all sources for cooperative agricultural extension for the year ended June 30, 1916—Continued.

BY PROJECTS—Continued.

State.	Agronomy.	Horticulture.	Botany and plant pathology.	Entomology and ornithology.	Forestry.	Agricultural engineering.	Farm management.	Rural organization.	Marketing.	Exhibits and fairs.	Farmers' institutes.	Correspondence courses.	Agriculture in schools.	Miscellaneous specialists.
New Jersey.....	\$1,937.59	\$4,712.96					\$553.12		\$269.65					
New Mexico.....							7,036.26		679.26	\$390.44			\$5,536.00	\$3,625.70
New York.....	7,937.82	5,240.97	\$6,338.98	\$3,736.91	\$1,531.42	\$2,287.50			3,530.48					
North Carolina.....	7,641.72	7,106.85	396.23				881.75							
North Dakota.....							3,401.19		10.93	750.00	\$24,602.03	\$7,344.64		8,323.90
Ohio.....						2,241.99							2,814.94	
Oklahoma.....							2,361.38	\$1,515.24	1,500.00			6,912.47		8,555.46
Oregon.....								3,458.93		2,183.79				
Pennsylvania.....		3,833.17												
Rhode Island.....	1,468.03								2,938.61					1,094.55
South Carolina.....	1,469.19	3,035.23												
South Dakota.....		560.45												
Tennessee.....	3,191.39				358.45	730.79	924.61		2,293.75					
Texas.....														
Utah.....	2,306.07					1,113.01	3,863.98	9,808.67				600.00		4,609.98
Vermont.....							2,839.76		642.75	1,329.74				
Virginia.....		3,647.51				2,251.48	2,740.46		255.14					
Washington.....	808.09						2,791.00							
West Virginia.....											6,897.48	1,051.88	1,063.79	
Wisconsin.....	6,781.53	2,769.09	3,070.50			4,397.85	2,578.82							
Wyoming.....										368.53	849.57			
Total.....	77,859.05	79,745.13	14,014.12	8,510.74	3,638.84	36,680.32	88,469.26	39,447.36	20,493.57	12,650.06	93,815.11	30,866.67	16,931.66	61,596.62

*Number of counties with county agents and expenditures for county-agent work
for the fiscal year ended June 30, 1916.*

State.	Number of agricul- tural counties.	Number of counties with agent.			Total expendi- tures.	Salaries.	Travel.	Other expenses.
		July 1, 1914.	July 1, 1915.	July 1, 1916.				
Alabama.....	67	67	67	65	\$84,462.92	\$77,127.08	\$6,938.63	\$397.21
Arizona.....	6	.....	3	6	9,457.70	5,267.98	2,089.43	2,100.29
Arkansas.....	75	45	52	53	103,630.69	97,820.89	4,858.29	951.51
California.....	45	4	11	13	57,488.30	27,373.17	19,950.94	10,164.19
Colorado.....	35	13	13	19	17,870.20	11,852.38	4,417.42	1,600.40
Connecticut.....	8	1	6	7	35,890.56	23,664.23	5,378.51	6,847.82
Delaware.....	3	.....	3	3	8,556.68	6,821.63	1,455.57	279.48
Florida.....	50	25	36	33	43,623.49	39,323.45	4,214.51	85.53
Georgia.....	152	80	81	83	99,971.86	94,060.22	5,427.26	484.38
Idaho.....	30	2	3	7	17,659.78	10,729.10	6,190.20	740.48
Illinois.....	102	14	18	20	112,605.70	66,782.50	10,809.58	35,013.62
Indiana.....	92	27	31	32	84,202.39	65,388.56	12,117.46	6,696.37
Iowa.....	99	9	11	16	49,554.53	31,522.29	17,940.46	91.78
Kansas.....	105	9	39	56	41,494.61	30,695.12	10,011.11	788.38
Kentucky.....	120	28	39	47	67,458.00	62,116.13	5,301.60	40.27
Louisiana.....	64	41	43	43	67,312.65	58,839.89	8,396.67	76.09
Maine.....	16	.....	3	4	9,854.71	5,745.15	3,029.13	1,080.43
Maryland.....	23	8	13	16	25,079.74	23,646.54	1,056.55	376.65
Massachusetts.....	13	1	10	9	15,561.18	14,543.68	878.56	138.94
Michigan.....	82	11	17	22	35,673.17	31,468.92	3,026.23	1,178.02
Minnesota.....	86	27	23	19	54,575.08	39,028.67	9,002.01	6,544.40
Mississippi.....	80	48	49	44	70,806.62	66,199.14	3,946.20	661.28
Missouri.....	114	13	15	14	44,105.73	40,281.48	3,366.50	457.75
Montana.....	41	4	8	7	29,373.16	17,456.16	11,917.00	.....
Nebraska.....	93	5	8	9	29,426.74	21,953.98	4,024.98	3,447.78
Nevada.....	15	.....	.....	.....	.....	.....	.....	.....
New Hampshire...	10	1	5	8	19,016.33	11,362.21	496.95	7,157.17
New Jersey.....	19	4	7	11	31,616.91	16,950.83	13,353.07	1,313.01
New Mexico.....	26	.....	8	9	22,544.41	13,966.88	7,862.48	715.05
New York.....	57	25	29	36	138,499.86	91,948.68	22,610.64	23,940.54
North Carolina.....	100	51	64	65	88,703.14	84,720.35	3,977.13	5.66
North Dakota.....	51	17	15	15	54,560.55	35,814.89	13,292.62	5,453.04
Ohio.....	75	8	10	12	32,006.87	23,374.49	6,111.63	2,520.75
Oklahoma.....	77	40	56	59	93,365.87	84,111.39	9,060.74	193.74
Oregon.....	35	10	12	13	46,172.88	28,067.57	5,705.01	12,400.30
Pennsylvania.....	67	10	14	22	69,399.06	47,667.72	14,898.09	6,833.25
Rhode Island.....	5	.....	.....	4	7,087.35	4,327.10	2,503.33	256.92
South Carolina.....	44	43	43	42	68,186.61	65,090.40	3,055.76	40.45
South Dakota.....	66	3	5	11	30,367.56	24,411.85	4,763.12	1,192.59
Tennessee.....	96	36	38	48	64,762.95	60,039.80	4,629.69	93.46
Texas.....	250	98	99	90	137,941.90	127,725.07	10,074.64	142.19
Utah.....	28	8	10	8	18,447.40	13,037.61	3,802.76	1,607.08
Vermont.....	14	7	9	11	34,546.26	18,584.07	9,022.35	6,939.34
Virginia.....	100	53	55	51	81,900.31	76,634.57	4,967.12	298.62
Washington.....	37	7	10	13	33,705.16	16,917.23	8,095.21	8,692.72
West Virginia.....	55	13	27	29	57,421.77	46,803.68	8,897.26	1,720.83
Wisconsin.....	71	9	12	13	41,529.87	30,315.05	8,749.19	2,465.63
Wyoming.....	21	3	6	8	24,060.60	17,371.47	6,483.22	205.19
Total.....	2,920	928	1,136	1,225	2,411,539.81	1,908,951.25	338,156.81	164,431.75

Number of counties with home-demonstration agents and expenditures for home-demonstration work for the fiscal year ended June 30, 1916.

State.	Number of agricultural counties.	Number of counties with agent.			Expenditures for all home-demonstration work.			
		July 1, 1914.	July 1, 1915.	July 1, 1916.	Total expenditures.	Salaries.	Travel.	Other expenses.
Alabama.....	67	18	19	27	\$19,534.44	\$15,025.54	\$3,583.36	\$925.54
Arizona.....	6				1,451.27	750.00	581.55	119.72
Arkansas.....	75	15	20	31	25,827.46	23,818.59	1,817.61	191.26
California.....	45				2,831.63	1,445.00	1,363.26	23.37
Colorado.....	35			2	2,272.97	1,819.96	390.85	62.16
Connecticut.....	8							
Delaware.....	3				1,916.96	1,326.76	462.27	127.93
Florida.....	50	24	27	28	29,955.21	26,617.15	3,167.28	170.78
Georgia.....	152	29	48	45	29,874.54	27,400.75	2,190.43	283.36
Idaho.....	30				3,258.48	2,339.97	814.78	103.73
Illinois.....	102			1	11,307.94	5,736.29	299.48	5,272.17
Indiana.....	92				5,010.75	3,768.44	1,088.78	153.53
Iowa.....	99				20,572.79	8,649.92	10,378.62	1,544.25
Kansas.....	105				9,198.08	7,693.95	480.95	1,023.18
Kentucky.....	120	9	19	24	23,029.33	19,991.53	2,940.46	97.34
Louisiana.....	64	13	13	18	16,118.94	13,595.19	2,353.63	170.12
Maine.....	16				1,684.63	950.00	635.01	99.62
Maryland.....	23	5	6	10	9,875.70	7,837.86	1,669.19	368.65
Massachusetts.....	13			1	4,888.41	3,911.65	713.88	262.88
Michigan.....	82			1	4,188.27	2,934.96	956.07	297.24
Minnesota.....	86				7,484.33	4,720.00	1,724.70	1,039.63
Mississippi.....	80	33	33	32	27,845.97	23,889.94	3,556.86	399.17
Missouri.....	114							
Montana.....	41				3,209.05	1,909.05	1,300.00	
Nebraska.....	93				5,155.83	3,852.23	1,077.42	226.18
Nevada.....	15			1	1,085.59	942.11	4.00	139.48
New Hampshire.....	10				1,600.00	1,060.00	496.95	43.05
New Jersey.....	19			1	3,412.83	1,764.00	1,209.21	439.62
New Mexico.....	26				2,136.94	1,283.30	793.60	60.04
New York.....	57			1	6,006.48	4,937.44	808.56	260.48
North Carolina.....	100	27	34	44	43,270.43	39,920.02	2,009.80	1,340.61
North Dakota.....	51				4,509.57	3,915.86	464.90	128.81
Ohio.....	75			1	16,085.00	12,359.17	3,544.33	181.50
Oklahoma.....	77	19	24	22	20,439.43	17,112.66	2,848.49	478.28
Oregon.....	35				2,403.37	1,500.00	789.06	114.31
Pennsylvania.....	67			1	5,652.87	3,432.35	1,579.18	641.34
Rhode Island.....	5				1,874.10	1,643.70	187.39	43.01
South Carolina.....	44	21	24	31	39,975.14	36,310.80	3,529.83	134.51
South Dakota.....	66							
Tennessee.....	96	18	24	31	27,258.10	22,742.31	4,377.34	138.45
Texas.....	250	26	27	38	22,285.95	17,819.72	4,438.74	27.49
Utah.....	28			2	5,309.58	4,058.39	793.77	457.42
Vermont.....	14				2,427.99	1,333.00	588.74	506.25
Virginia.....	100	17	22	25	23,557.53	20,180.46	3,181.83	195.24
Washington.....	37				3,118.81	1,760.00	924.70	434.11
West Virginia.....	55	5	10	12	9,332.73	6,860.02	1,519.03	953.68
Wisconsin.....	71				8,880.14	7,700.00	1,140.01	40.13
Wyoming.....	21				2,751.43	1,800.00	554.94	396.49
Total.....	2,920	279	350	430	519,866.99	420,420.04	79,330.84	20,116.11

Number of persons on extension staffs classified according to the time devoted to agricultural extension work for the fiscal year ended June 30, 1916.

State.	Extension staff.								Also connected with experiment station.				Also connected with college teaching.			
	Total.		Full time.		More than half time.		Less than half time.		More than half time.		Less than half time.		More than half time.		Less than half time.	
	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.
Alabama.....	98	42	86	39	2	2	10	1	1	.....	8	.....	1	.....	3	.....
Arizona.....	15	2	9	1	.....	.....	6	1	.....	.....	6	.....	.....	.....	5	.....
Arkansas.....	84	47	74	37	.....	.....	10	10	.....	.....	10	.....	.....	.....	10	.....
California.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colorado.....	24	5	19	3	.....	.....	5	2	.....	.....	5	.....	.....	.....	4	2
Connecticut.....	15	1	12	1	.....	.....	3	.....	.....	.....	.....	.....	1	.....	.....	.....
Delaware.....	10	6	4	1	1	.....	5	5	.....	.....	4	3	.....	.....	5	.....
Florida.....	50	35	38	33	1	1	11	1	.....	.....	9	1	1	.....	3	.....
Georgia.....	95	55	93	54	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Idaho.....	28	11	13	5	.....	.....	15	6	.....	.....	3	1	.....	.....	6	2
Illinois.....	34	5	25	3	4	1	5	1	3	.....	5	.....	4	1	5	1
Indiana.....	87	13	58	7	1	.....	28	6	.....	.....	.....	.....	1	.....	.....	.....
Iowa.....	79	15	45	9	1	.....	33	6	.....	.....	.....	.....	.....	.....	.....	.....
Kansas.....	40	8	40	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kentucky.....	57	38	55	35	.....	.....	2	3	.....	.....	2	.....	.....	.....	2	.....
Louisiana.....	53	22	50	22	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maine.....	9	1	8	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maryland.....	44	13	33	13	3	.....	8	.....	2	.....	1	.....	1	.....	7	.....
Massachusetts.....	32	4	24	4	.....	.....	8	.....	.....	.....	1	.....	.....	.....	8	.....
Michigan.....	35	5	35	5	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Minnesota.....	44	6	35	4	1	.....	8	2	.....	.....	.....	.....	.....	.....	1	.....
Mississippi.....	57	38	56	24	1	14	.....	.....	1	.....	.....	.....	1	.....	.....	.....
Missouri.....	63	10	33	3	2	.....	28	7	.....	.....	26	.....	.....	.....	27	.....
Montana.....	16	2	16	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska.....	36	5	31	5	1	.....	4	.....	.....	.....	.....	.....	.....	.....	4	.....
Nevada.....	9	3	4	1	.....	.....	5	2	.....	.....	1	.....	.....	.....	4	1
New Hampshire.....	15	4	13	4	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
New Jersey.....	25	.....	22	.....	.....	.....	3	.....	.....	.....	3	.....	.....	.....	3	.....
New Mexico.....	19	3	13	3	1	.....	5	.....	1	.....	5	.....	1	.....	5	.....
New York.....	78	5	62	4	7	1	9	.....	.....	.....	.....	.....	6	1	3	.....
North Carolina.....	103	46	83	32	8	6	12	8	3	.....	12	.....	.....	.....	.....	.....
North Dakota.....	29	5	21	4	3	.....	5	1	.....	.....	3	.....	.....	.....	2	.....
Ohio.....	92	20	26	9	4	1	62	10	.....	.....	9	1	.....	.....	3	1
Oklahoma.....	75	31	73	29	.....	.....	2	2	.....	.....	.....	.....	.....	.....	.....	.....
Oregon.....	51	13	32	12	3	1	16	.....	.....	.....	14	1	1	15	.....	.....
Pennsylvania.....	52	4	30	2	.....	.....	22	2	.....	.....	3	.....	.....	.....	19	3
Rhode Island.....	9	2	6	1	.....	.....	3	1	.....	.....	.....	.....	.....	.....	2	.....
South Carolina.....	65	39	59	38	4	1	2	.....	.....	.....	.....	.....	.....	.....	2	.....
South Dakota.....	18	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee.....	69	44	61	13	.....	27	8	4	.....	.....	1	.....	.....	.....	7	.....
Texas.....	98	44	97	17	.....	16	1	11	.....	.....	.....	.....	.....	.....	1	.....
Utah.....	38	11	17	6	.....	.....	21	5	.....	.....	11	.....	.....	.....	21	4
Vermont.....	24	2	15	1	.....	.....	9	1	.....	.....	5	.....	.....	.....	7	.....
Virginia.....	70	56	41	3	27	22	2	31	.....	.....	1	.....	.....	.....	2	.....
Washington.....	36	4	36	3	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....	.....
West Virginia.....	70	15	34	7	4	5	32	3	1	.....	8	.....	1	.....	10	1
Wisconsin.....	96	7	19	4	23	1	54	2	17	.....	38	.....	13	1	40	2
Wyoming.....	20	7	12	3	.....	.....	8	4	.....	.....	5	.....	.....	.....	5	.....
Total.....	2,266	754	1,686	515	108	100	472	139	30	.....	199	7	33	19	226	17

M.=Men.

W.=Women.

Agricultural extension publications for the fiscal year ended June 30, 1916.

State.	Number of pub- lications issued.	Number of pages issued.	Number on mailing list.	Total cost.
Alabama.....	7	21	25,000	\$1,123.48
Arizona.....	8	75	800	1,126.66
Arkansas.....	11	85	10,000	2,242.00
California.....				186.41
Colorado.....	5	60	7,745	923.62
Connecticut.....	4	34	7,000	1,105.61
Delaware.....	1	8	7,000	101.80
Florida.....	3	30	18,000	612.62
Georgia.....	27	266	54,000	3,193.44
Idaho.....	11	128	8,000	769.90
Illinois.....	2	12		437.17
Indiana.....	23	244	323	1,184.18
Iowa.....	85	1,335	1,785	8,796.76
Kansas.....	8	189	10,000	394.71
Kentucky.....	47	176	3,950	1,583.71
Louisiana.....	15	217	12,000	1,430.92
Maine.....	6	108	4,160	331.86
Maryland.....	2	31	4,500	743.25
Massachusetts.....	55	330	2,144	718.33
Michigan.....	7	84	60,000	2,780.52
Minnesota.....	39	180	55,000	12,143.12
Mississippi.....	11	102	10,000	615.30
Missouri.....	9	192	12,397	1,354.35
Montana.....			500	329.70
Nebraska.....	3	48	20,000	2,949.68
Nevada.....	13	212	5,723	881.24
New Hampshire.....	19	196	10,500	416.91
New Jersey.....	6	83	11,000	768.60
New Mexico.....	55	297	9,850	1,267.58
New York.....	33	1,109	348,431	9,969.72
North Carolina.....	9	129	30,000	6,394.50
North Dakota.....	3	47	10,000	772.35
Ohio.....	49	506	35,000	2,909.21
Oklahoma.....	27	257	1,000	2,307.38
Oregon.....	21	249	30,000	1,699.69
Pennsylvania.....	6	83	50,000	2,816.82
Rhode Island.....	1	20		124.00
South Carolina.....	16	366	955	2,577.00
South Dakota.....	1	16		24.50
Tennessee.....	9	130	8,000	2,620.10
Texas.....	64	417	19,962	3,918.35
Utah.....	26	160	7,076	840.35
Vermont.....	2	32	10,000	568.53
Virginia.....	5	160		637.64
Washington.....	14	127	12,000	4,393.20
West Virginia.....	53	360	48,327	3,367.20
Wisconsin.....	22	179	30,000	1,244.34
Wyoming.....	21	240	11,700	2,081.37
Total.....	864	9,330	1,023,828	99,779.68

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